

# ANNUAL REPORT 2022



DEVELOPING SKILLS FOR BETTER WATER MANAGEMENT



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# WELCOMING MESSAGE

**M**uch more than in previous years, 2022 illustrated the importance of better water resource management at all levels. The impacts of climate change have been particularly felt in France and Europe, with periods of drought in summer and autumn and their practical consequences on the community and on economic activity. More widely, at global level, dramatic events regularly illustrate that “water is the primary victim of climate change”.

Even more than in the past, OiEau is thus asked to train, inform and support a wide range of customers and partners faced with complex, pressing issues, whether they are local authorities, manufacturers, water and sanitation services, ministries and public agencies, or basin organisations. These numerous requests have resulted in a marked increase in activity in all OiEau's areas of business.

OiEau endeavours to inform its customers' decisions, boost their skills, train their staff, and support the implementation of solutions adapted to each context, in France and internationally. From the outset, our values of independent expertise have been underpinned by our recognition as a public interest association. Since 2022, OiEau has also been accredited in France for environmental protection. This is an additional source of pride for the OiEau teams, who are actively involved in documenting the debates on water, and training people to manage water resources in an increasingly integrated way that meets the needs of human activities and respects the way that aquatic ecosystems work.

Securing water and sanitation services and securing the management of water resources are two universally shared concerns, in France and around the world, to which OiEau continues to provide solutions. Many examples of these are contained in this business report.

We hope you enjoy reading it.



**Mr Berteaud**  
President



**Mr Tardieu**  
Director General

# OiEau IN BRIEF

## CREATION

The International Office for Water was established in 1991. It was born from the merger of three organizations: the Water Institute or Water Foundation (Limoges); the International Training Center for Water Resource Management (Sophia Antipolis) and the French Association for the Study of Water (Paris).

## MAIN OBJECTIVE

Development of skills for better water management in France, Europe and around the world.

## STATUTE

Non-profit association under French law. Recognised of public utility, by Decree of 13 September 1991, with renewal on 16 September 2020. The modification of the OiEau's statutes in 2020 in particular aimed to widen our statutory object to the fields of aquatic environments, biodiversity, the environment and the circular economy. Previously, only the field of water was covered in Article 1. Since 2022, OiEau has had "Environmental Protection" accreditation.

## WORKFORCE & LOCATIONS

Nearly 140 employees spread over four locations in France. 45,000m<sup>2</sup> of teaching platforms in Limoges and La Souterraine (France).

## FUNCTIONING OF BODIES

In accordance with the modification of the statutes, **the board of directors** is now composed of 24 members, instead of 28 members previously. It includes different types of structures: full members who are public entities of reference in the field of water and biodiversity (e.g. water agencies, local authorities, etc.), economic actors involved in the management or use of water resources, international organisations, associations and French public operators competent in biodiversity and water resource management. Representatives of French ministries (Foreign and European Affairs, Agriculture, Foreign Trade, Ecological Transition, Industry, Health) may also attend board meetings.

In 2022, the board of directors met on 4 May and 15 December. An **Ordinary General Assembly** also took place on 6 July.

The **President**, Mr BERTEAUD, represents the Association in all acts of civil life.

The **Director General**, Mr TARDIEU, was appointed by the Board of Directors on 1<sup>st</sup> July 2017.

## ORGANIZATION OF THE TEAMS



# COUNTRIES WHERE OiEau OPERATES

## 27 EU countries

Austria	Denmark	Ireland	Poland
Belgium	Estonia	Italy	Portugal
Bulgaria	Finland	Latvia	Romania
Cyprus	France	Lithuania	Slovakia
Croatia	Germany	Luxembourg	Slovenia
Czech Republic	Greece	Malta	Spain
	Hungary	Netherlands	Sweden

## 7 Mediterranean countries

Algeria	Jordan	Palestine	Turkey
Egypt	Morocco	Tunisia	

## 9 European countries outside the EU

Armenia	Iceland	United Kingdom
Azerbaijan	Moldova	Swiss
Georgia	Norway	Ukraine

## 8 countries in Latin America & the Caribbean

Bolivia  
Brazil  
Colombia  
Cuba  
Dominica  
Ecuador  
Saint Lucia  
Suriname

## 22 countries in Africa

Angola	Gabon	Mauritania
Benin	Gambia	Niger
Burkina Faso	Ghana	Nigeria
Cameroon	Guinea	Republic of Congo
Central African Republic	Ivory Coast	Senegal
Chad	Kenya	Togo
Democratic Republic of Congo	Libya	
	Malawi	
	Mali	

## 5 countries in Asia & Central Asia

Cambodia	Thailand
China	Vietnam
Laos	

&

**150**  
partner  
organizations

## FRANCE Mainland & Overseas

All mainland Regions  
Guadeloupe  
Guyana  
Martinique  
Mayotte  
New Caledonia  
Reunion



## OUR VALUES

OiEau is a non-profit and State-approved association. The people's general interest is at the core of its practices, regardless of the type of activity carried out or partnership established. In 2019, all employees reaffirmed the common values that drive us.

The favored values by order of importance\*:

- 1  
General interest & Public utility.
- 2  
Independence & Neutrality from private interests.
- 3  
Innovation & Performance.
- 4  
Pride in implementing skills.
- 5  
Protection of the Environment and Biodiversity.
- 6  
Sense of knowledge sharing & networking.
- 7  
Participatory water management for inclusion of all stakeholders.
- 8  
Interculturality & Openness to others.

\* Survey conducted from 06/25 to 07/05/2019.

## OUR MISSIONS

OiEau covers small and large water cycles. It puts its technical, operational, institutional, legal and strategic expertise at the service of all water stakeholders. And this, at all levels, from a local authority up to national and transboundary policies.

### In the field of Water and related activities, OiEau aims to:

- **Facilitate exchanges** between decision makers, designers, managers, industrialists, trainers, researchers and users concerned, to better face their problems together, coordinate their actions and disseminate their information.
- **Develop skills and partnerships** between French and foreign public and private organizations.
- **Carry out projects and programs of common and collective interest** to better meet the demands and needs of the International Water Community.

### OiEau carries out its missions:

- **Worldwide**, as part of cooperation projects on the different continents.
- **In Europe**, to promote a concerted approach to the management of water resources and aquatic environments, on a continental scale.
- **In France**, to strengthen and multiply the actions of various public and private stakeholders in the sector.

## OUR AREAS OF EXPERTISE

### IN FRANCE AND WORLDWIDE



Continuing training for water and environmental professionals.



Use of water-related knowledge & information systems.



Technical and institutional support – Cooperation.



Networking of water stakeholders.



# OUR TRUSTED PARTNERS

For over 30 years, a huge variety of French and international partners and clients have asked OiEau to design and implement projects involving one or more of our four areas of expertise.

Our team of experts with highly complementary profiles means we can offer a wide range of technical, operational, institutional, legal and strategic know-how, dealing with a vast range of issues.

Our strengths?

Listening to you and identifying your needs and expectations. We can therefore provide you with compelling, innovative solutions suited to integrated, sustainable and ecosystemic water management.

This is all done in complete independence from private interests, a value guaranteed by our status as a recognised public utility association.

Whatever your level of intervention, from local to cross-border, the profile of your organisation, sector or the nature of your use of water resources, OiEau will be at your side.

OiEau currently operates in nearly 80 countries where local authorities, industrial companies, operators, suppliers and distributors of equipment, institutions, design offices and NGOs have chosen OiEau to lead their short, medium or long term projects.



*Mobilising and developing human skills that closely align with needs, better sharing of information, making the organisations we support more robust, supporting effective international cooperation and remaining at the cutting edge of innovation: these are the general-interest challenges that OiEau has been addressing with pride, every day for over 30 years.*



**Eric Tardieu,**  
Director General - OiEau

# LOCAL AUTHORITY

In accordance with its general interest status, OiEau supports public stakeholders to achieve better water management.

Do you work for a municipality, region, department, conurbation, metropolis, or within a trade union or local public institution?

Thanks to our four complementary areas of expertise, we can build a tailor-made project with you, to meet your specific needs and issues.

From transfer of skills to implementation of a local strategy of adaptation and resilience to climate change, for example, OiEau is at your side, whatever your type of project.

## Examples of solutions provided by OiEau



**Setting up a training plan with monitoring and evaluation tools and procedures.**



**Implementing a “water - climate change” transition plan.**



**Legal and regulatory monitoring.**



**Technical monitoring of project/project management: assistance with defining, steering and technical and financial management, coordination.**

## Discover the current projects conducted with Local authorities



A key challenge: training elected representatives ..... p 17



Custom training for French government services ..... p 19



Wastewater treatment: important developments ..... p 21



Tools for coping with drought..... p 25



# MANUFACTURING INDUSTRY OR OTHER BUSINESS STAKEHOLDER

Whether you're an SME or international group, regardless of your sector, the challenges of water, sanitation and waste are essential to your business continuity, both in terms of operations and compliance with legislative changes.

Faced with major risks due to the impacts of climate change, both on the quantity and availability of resources and on their quality or that of the receiving environments, how can a full cost approach to water make your investments worthwhile?

How can you manage the problem of optimising the water circuits in your business to reduce your impact on consumption, while securing your production?

How can you respond to the strong incentives to economise on the use of resources and the commitments to new solutions, some of which lead to powerful recycling enabling "zero liquid discharge"?

OiEau supports you in all your projects, in complete independence, a core value of our general interest mission. We guarantee totally objective expertise.

## Examples of solutions provided by OiEau



**Water and Energy Optimisation: Audit, Tests, Advice and Assistance.**



**Setting up an evaluation tool for skills, activities and jobs.**



**Training teams: CARTE training on industrial sites. Choice of topics (REUSE, Water and Environment, etc.).**



**Solving technical problems on your production facilities or waste treatment.**

## Discover our current projects with Manufacturing industries or other business stakeholders:



Research & Development: EDF, INRAE, Schneider Electric, historic partners ..... p 29



OiEau: partnering innovative contractors ..... p 29



The problem of industrial and rain water: operational support from OiEau ..... p 30



Life Zeus Project: saving water in the agri-food industry ..... p 44

# WATER AND SANITATION SERVICES OPERATOR

Drinking water and sanitation are major health issues that involve significant needs in terms of knowledge, training and organisation, for regulatory institutions or public and private managers.

Often referred to as the “small” or “domestic” water cycle, your activities usually come under the concept of public service and competences exercised, in France, by local authorities.

Through its four fields of expertise, OiEau is often consulted by operators, to assist them in strategic and operational decisions for all the stages of their mission (sampling, potabilization, supply and distribution of drinking water to the tap and collective distribution points, collection of wastewater from usage, treatment, up to discharge into the natural environment).

We support all types of profiles, your technical staff, your engineers and your managers, on many issues including training, via short, medium or long term actions.

These projects have been live for decades, involving around 250,000 people, and have already led to the irrigation of the entire operating sector, in France and throughout the world.

## Examples of solutions provided by OiEau



**Development of an evaluation tool for skills, activities and jobs.**



**Staff training to optimise service quality: choice of methods or topics.**



**Data dissemination tool and simulation indicators: Decision Support Information System.**



**Project management assistance on tools (SIG - Remote management).**

## Discover our projects conducted with Water and sanitation services operators



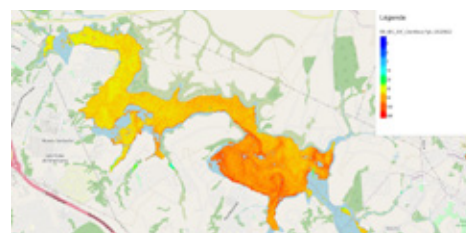
OiEau continues to develop its online offer .....p 18



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Impact of urban waste: monitoring equipment & satellite treatment.....p 27

# PRODUCTION OR SUPPLY COMPANY

**Do you carry out infrastructure works related to the water cycle? Do you supply technical equipment?**

OiEau supports you in training your staff in the best available techniques, to be integrated into your works.

To ensure your staff become operational as quickly as possible, OiEau provides short sessions, based on professional methods and skills, helping them master the technical regulations (safety, standards, DTU - standardised technical document - etc.), and improving their knowledge of innovations in methods, materials and equipment.

An optimum return on investment for your company and an appropriate response to the current tensions in recruitment.

We also assist you in improving the durability of your technical assets (networks, specific works, treatment, etc.).

## **Are you a supplier?**

We train your technical advisers and your sales forces, to boost their impact when giving advice to customers.

## Examples of solutions provided by OiEau



**Tailor-made solution: integration of climate change risks in conducting works.**



**Consultation and positioning as a partner on calls for tender for design, construction and operation or maintenance projects.**



**Scientific, technological and regulatory monitoring. Technical innovations.**



**Support for international projects.**

## Discover our projects conducted with Production or supply companies



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Water4all: European partnership for global water safety ..... p 37



# INSTITUTION

Whether you're a basin agency, an institutional or international funder, a ministry, institute or research organisation, or a consular chamber, OiEau, a recognised public utility association, is an essential partner in water and environmental issues.

As part of its institutional support to various beneficiaries, European project partnerships, or to meet capacity building challenges in France and worldwide, OiEau is able to mobilise its four complementary areas of expertise to consolidate your actions.

The deployment of information systems or resource centres, creation of international training centres, innovation projects in Europe, support for water governance (IWRM) at all scales, from local to cross-border, are some examples of topics deployed by OiEau for many years.

In addition, OiEau's capacity to create and lead networks increases the scope of your actions, by promoting dialogue and the exchange of good practices and feedback.

## Examples of solutions provided by OiEau



**Diagnoses and needs analyses by region or by country.**



**Creation of reporting, monitoring and data evaluation tools.**



**Staff training on various topics (climate change, biodiversity, IWRM, etc.).**

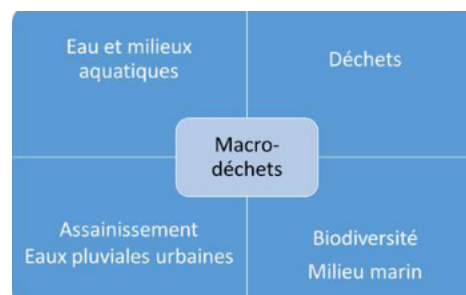


**Creation of stakeholder networks.**

## Discover our projects conducted with Institutions



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OiEau, vehicle for the European vision for water, in the Eastern Partnership countries.....p 32



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# CONSULTANCY & ENGINEERING

OiEau regularly partners with engineering firms, as part of joint responses to calls for tenders or projects, in France and internationally.

Our plus points? Our four independent, complementary areas of expertise, which include training to boost the skills of your technicians and engineers, our international reputation and positioning, as well as the exchange networks that we set up and lead.

## Examples of solutions provided by OiEau



**Consultancy & Assistance in organising and implementing water cycle management policies.**



**Technical, regulatory and technological monitoring.**



**Support for development of international partnerships.**

# NGOS & ASSOCIATIONS

Given that access to water and sanitation is still a major objective in many countries, OiEau will support you in your urgent or development actions of general interest. We will support you in the capacity building of institutional and civil society stakeholders, in a spirit of cooperation and respect for the reality of each local area.

## An example of the issues to which OiEau can provide solutions

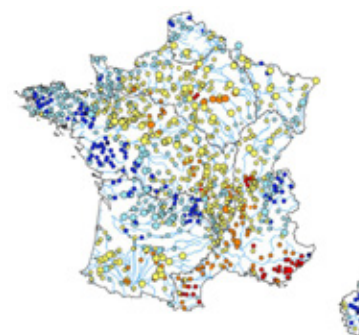


**Training of NGO contacts in the countries.**

## Discover our current projects with Consultancy & Engineering services



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Technical and Institutional Support - Cooperation ..... p 28



Partnership with Société du Canal de Provence..... p 43

# KEY HIGHLIGHTS OF 2022

JANUARY



Launch of the ZEUS project

See p 44

FEBRUARY



Launch of the training part of OiEau's new website

See p 16

26-29  
09



20<sup>th</sup> international "Europe-INBO" Conference

Anney - France

See p 35

SEPTEMBER

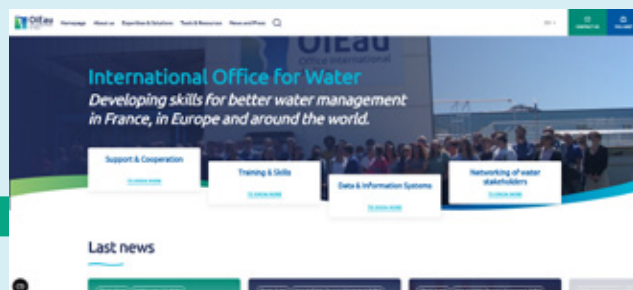


Launch of the podcast "The Little Streams"

See p 36

AUGUST

SEPTEMBER



Launch of the institutional part of OiEau's new website



21-26  
-  
03



MARCH

APRIL

### 9<sup>th</sup> World Water Forum

Dakar - Senegal  
See p 51



### French-Bolivian experience exchange mission

Paris  
See p 31



6-8  
-  
07

JULY

### OiEau's internal seminar

Limoges / La Souterraine - France  
See p 48



JUNE

### Obtaining the "Environmental Protection" approval

France  
See p 4

6-18  
-  
11



NOVEMBER

DECEMBER

### United Nations Climate Change Conference (COP27)

Sharm el Sheikh - Egypt



### General Assembly of the World Water Council

Paris - France  
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# CONTINUOUS TRAINING FOR PEOPLE IN THE WATER, SANITATION, WASTE AND ENVIRONMENT SECTOR

2022 was marked by very intense vocational training activity, with our clients expressing a strong need for face-to-face training, particularly on traditional topics such as networks, service management, purification and production of drinking water.

In France, OiEau saw increased traction with large metropolises, local authorities and inter-municipal trade unions. “For many years, Limoges Metropole has made use of OiEau’s training, delivered in Limoges and La Souterraine, as it’s an effective way to upgrade the skills of our staff.” commented Jean-Luc Mazeau, Deputy director general of the Quality of Life Division (waste, water, sanitation, natural spaces and renewable energies) for Limoges Metropole, one of OiEau’s main local authority clients.

OiEau has also confirmed its commitment to training staff from private operating groups.

Remote training is now well established, with 700 people trained remotely in 2022 and a wide range of online training types (synchronous and hybrid training, virtual tours, videos on specific skills and operations, etc.).

Internationally, training activity has also been intense, with a strong synergy between training activities and technical support in Switzerland, Tunisia, Gabon, Ghana, Palestine, Thailand, and so on.

Educational engineering has been developed into missions to assess skills, support the design of training plans and assist in the creation of training centres in Morocco and Benin.


Finally, this year we launched the new OiEau website. It features an area dedicated to our training, which includes new presentation, search and online pre-registration functionalities that have led to a significant increase in registrations since the first semester.

“*The training course we’ve designed in collaboration with OiEau means we can recruit people who aren’t familiar with water treatment. This levelling up of technical skills, complemented by an internal training course, helps to diversify our pool of new recruits. We’re very satisfied with our collaboration with OiEau.*”

**Mr Chataigner,**  
Deputy CEO of Centre Seine - Veolia

**+ 40 years**  
of experience

**35** permanent  
trainers

 **320**  
training programs

**& 607**  
sessions per year

**5,183**   
people trained per year

**16,130** training  
days

 **All levels:**  
workers, technicians, executives

 Face-to-face,  
distance and  
digital training

**45 000 m<sup>2</sup>**  
of educational units for  
work situation scenarios

# Reinforcing the skills of the Departmental Mixed Syndicate for Water and Sanitation (SMDEA) in Ariège

Ariège's Departmental Mixed Water and Sanitation Syndicate (SMDEA) is a public body operating in 297 communes in France, managing its prerogatives directly for its 85,000 customers. The SMDEA is primarily involved in the production, distribution and operation of drinking water, and the collection and treatment of wastewater (collective and non-collective sanitation).

In recent years, the SMDEA has faced recruitment difficulties in a number of short-staffed professions. In addition, as the union changes, it needs to reposition its employees in changing jobs, while at the same time implementing a process to strengthen and recognise the skills of its staff.

To meet these challenges, OiEau is supporting the SMDEA over the period 2022 - 2025 by carrying out the following tasks:

- Preliminary assessment of the skills of the staff in the drinking water production and networks and wastewater treatment plant operation departments.

- Design of training courses in the form of individualised curricula and implementation of the multi-year training plan.
- Validation of blocks of acquired skills for each learner on the basis of short term assessments at the end of the course and long term assessments a few weeks later.

In a second phase, certain agents will be trained by OiEau so that they can continue to progress until they reach expert level, thereby becoming the technical referents for the SMDEA in Ariège.



View of the remote skills assessment application. ©OiEau

## A key challenge: training elected representatives

In 2022, French accreditation of “Training for Elected Representatives” was renewed, enabling OiEau to offer adapted individual training in a short format (2 to 3 hours) and remotely.

To encourage French elected representatives to become involved in technical or operational matters (e.g. GEMAPI) in addition to more traditional topics (safety, legislation), OiEau proposes integrating them into collaborative projects, for which the elected representatives are strategic decision-makers.

For example, OiEau will participate in the “Vienne Métropole”, “Vienne médiane et affluent” and “Briançon” regional contracts for the management of aquatic environments (CTMA), for six years, on very technical issues as well as multi-stakeholder dialogue.

Between 100 and 200 elected representatives were able to receive training in these CTMA, by using their training entitlement and associated funding.

## Changes in vocational training and impacts on OiEau

In 2022, in France, the job tensions in the water sector confirm the forecasts of the study on “Commitment to the development of employment and skills” by the French Water Sector (March 2021). The age pyramid of the staff, combined with a limited amount of initial vocational training, means that demand cannot be met. The aim is to provide skills to more generalist, often inexperienced profiles.

OiEau's educational platforms and expertise are a much appreciated solution. In 2022, there was a high demand for technical training, making it the best year ever in terms of enrolments for our catalogue courses. This has enabled us to continue developing new training formats, remotely and / or online, to further facilitate the transfer of professional knowledge.

### Enrolments for catalogue courses in 2022:

+ 17,5 % compared to 2021

+ 5 % compared to the best year historically



# OiEau continues to develop its online offer

To support the growing demand from our partners and clients, OiEau's digital division helps our experts to produce online content for our four areas of expertise.

## Key figures

- 700 people trained remotely in 2022 (catalogue, custom training, webinars);
- 34 majority online training courses in the training catalogue;
- Participants from all organisations: local authorities, design offices, manufacturers, equipment suppliers, elected representatives, government or local authority technical services, managers of aquatic environments, stakeholders in catchment areas, stakeholders in rainwater management, etc.
- A wide range of topics: circular economy and waste, drinking water and sanitation, industry, town planning, rainwater, etc.

## Main achievements in 2022

- **Co-modal training** (simultaneous face-to-face and distance learning), hybrid (face-to-face and deferred distance learning) and 100% distance learning courses.



"Rainwater management and nature in the city" Webinar. ©OiEau

- **Webinars** on Water Safety Plans (WSP), improving rainwater management practices and nature in the city, for the French Office for Biodiversity (OFB), etc.



Series on "Words from...". ©OiEau

- **Information videos** on our activities.



MOOC for the Life Zeus project. ©OiEau

- **Educational products:** MOOC (or online training), virtual tours of technical facilities, technical processes.



Motion design presentation of the leak detection role. ©OiEau

- **Motion design activities** to present the competencies of the water sector.



Presentation video for "Discovering the water sector" training. ©OiEau

- **Themed videos** (waste, drinking water and sanitation, etc.).



## More information at:

Video presentation of the Digital Unit:

[www.oieau.org/en/actualites/video-words-from-the-digital-unit](http://www.oieau.org/en/actualites/video-words-from-the-digital-unit)

# Drinking water production: OiEau's new educational platform



New compact drinking water treatment plant - OiEau Training Centre - La Souterraine site. ©OiEau

The drinking water production educational platform in La Souterraine consists of several treatment pilots. These processes make it possible to clarify and refine river water to transform it into water intended for human consumption: coagulation, flocculation, decanting, filtration, ozonation, activated carbon, limestone neutralisation, remineralisation (CO<sub>2</sub> + lime), ultrafiltration, disinfection, etc.

The water is treated in two drinking water treatment plants at the same time: a “Pulsatube” plant, named after the decanter of this plant, and a “Claribloc” plant. The latter was replaced in 2022 by a new compact clarification pilot with an average flow rate of 15 m<sup>3</sup>/h. These pilots are mainly used for training in the operation of drinking water treatment plants and for demonstration purposes during our training courses on drinking water treatment processes.

Financed by the OiEau's own funds, built in stainless steel for durability and assembled by the OiEau's technical services, this new drinking water treatment pilot offers:

- optimised treatment in terms of hydraulic clarification: coagulation, flocculation, lamellar decanting, filtration on sand or other materials;
- visual observation of water quality changes, including floc formation;
- performance of numerous tasks: measuring flow rates, adjusting reagents, monitoring water quality (turbidity, iron, manganese, organic matter, ammonium, hardness, alkalinity of the water, etc.), modifying hydraulic conditions (contact time, flow speed).

## Custom training for French government services

In 2022, OiEau delivered the first training course aimed at providing knowledge and expertise in urban sanitation, to officers in the departments responsible for water policing and environmental services, in the French Ministries of the Sea, Ecological Transition, and Territorial Cohesion.

The initial educational engineering phase with OiEau resulted in a custom training course of 9.5 days, 6 of these face-to-face on sites selected through consultation, and 3.5 as remote learning.

These government officers were therefore able to strengthen their skills in a variety of tasks relating to sanitation, such as:

- leading technical meetings with local authorities and system operators;
- examining applications for declaration or authorisation of systems;
- annual assessment of the legislative compliance of systems.

At the end of the training, OiEau provides the trainees with all the training documents as well as additional materials, in printed and digital format, which can be accessed on our online training platform (operating guides, control sheets, thumbnails, particularly on the visual and olfactory diagnosis of effluents).

***“OiEau has succeeded in building a custom curriculum that meets the high requirements of the contracting authority, the Water and Biodiversity Directorate. The test year of 2022 is very satisfactory. The training plan will be rolled out to other geographical sectors in 2023.”*** Ms Noiret, Head of the Competition Training Engineering Department - Ministry of Ecological Transition, Nancy CVRH

# Training of international water and sanitation personnel



Practical work during a training session for ONAS staff. ©OiEau

Internationally, OiEau's training activity continued to be intense in 2022, with a strong synergy between training and technical support activities. OiEau operated in various geographical areas, such as Europe (Switzerland, Belgium, Luxembourg), Africa (Tunisia, Gabon, Ghana, Ivory Coast), the Middle East (Palestine), Asia (Thailand) and the Caribbean (Dominica, Saint Lucia), etc. In 2022, the largest numbers of professionals trained by OiEau came from the French-speaking Swiss Group for the Training of Wastewater Treatment Plant Operators (FES) and the National Sanitation Office (ONAS) in Tunisia.

For over 20 years, OiEau has been contributing to the degree programme organised by the French-speaking Swiss Group for the Training

of Wastewater Treatment Plant Operators in preparation for the "Wastewater Treatment Plant Operator" Federal Certificate examination. Since 2002, around 600 operators of wastewater treatment plants in French-speaking Switzerland have been trained by OiEau and the other FES partners.

Additionally, in 2022, financed by the German Kreditanstalt für Wiederaufbau and the Swiss State Secretariat for Economic Affairs, OiEau was able to implement the training plan for ONAS staff in Tunisia, to help its operators manage the modern infrastructures of their sanitation assets on the topics of "maintenance, laboratory and automation". This training plan, which will run from 2022 to 2024, covers 300 days of training, 35 subjects and 70 sessions and will be mainly carried out in Tunisia, but also in France.

*"We have used OiEau's training courses for many years now. We've always been very satisfied and so we have full confidence in OiEau's ability to contribute to this strategic training programme for staff operating wastewater treatment plants in French-speaking Switzerland."*

Mr Margot, President - FES

## Veolia & Limoges Metropole: significant investment in training

Changes in the technical and asset management of water and sanitation services, the search for the best network yields, the implementation of water safety management plans (WSP), energy optimisation, rainwater management and so on, require private and public operators to continue boosting the skills of their staff to prepare for the major challenges of resilience to climate change.

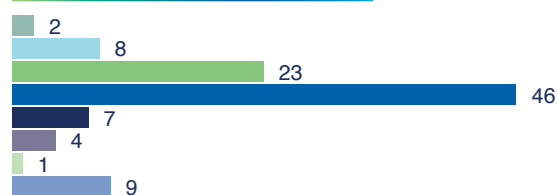
In 2022, on its sites at Limoges and La Souterraine, OiEau trained 177 Veolia agents and 110 from Limoges Metropole, mostly on the operation of water services and sanitation.

OiEau also partners Veolia STI in the training and development of future purification plants in Montpellier. In the same way, we work alongside Limoges Metropole to support its hydric transition, implementing its new sanitation procedures or the contract for the management of aquatic environments (CTMA).

### Agents trained for Limoges Metropole



### Agents trained for Veolia





# Wastewater treatment: important developments



On the La Souterraine site, OiEau has designed a 220 p.e. activated sludge WWTP equipped with tertiary treatment, specifically for training. This functional unit can supply different water qualities:

- Bathing water obtained by screening and ultraviolet.
- Water reusable in agriculture after ultrafiltration.
- Water that has been treated for micropollutants by adsorption on granular activated carbon.

Thanks to its training capacities, which include permanent trainers and teaching platforms, OiEau enables learners to understand the current and future constraints related to wastewater treatment.

Energy savings, sludge sanitation, wastewater reuse, micropollutant treatment... Wastewater Treatment Plants (WWTPs) are already undergoing, and will undergo, significant changes.

OiEau offers around 40 vocational training courses on wastewater treatment to strengthen the skills of the various stakeholders in the sector, in terms of choice, design, sizing, operation and maintenance of WWTPs.

To illustrate this training, OiEau has showrooms, wastewater treatment plants (activated sludge, physico-chemical treatment, flotation, etc.), physico-chemical and biological analysis laboratories, sludge dewatering units (centrifuge, filter press, belt filter, etc.) and a set of visitable pipes.

 **More information at:**  
[www.oieau.org/formations](http://www.oieau.org/formations)



## Purification Topic in 2022

**650**   
people trained

**120**   
training sessions delivered

# KNOWLEDGE DEVELOPMENT & WATER INFORMATION SYSTEMS

**M**any countries worldwide are exposed to the effects of climate change, with periods of drought, floods, pollution, and so on becoming increasingly frequent and growing in intensity.

Water is an essential resource for our health, our ecosystems and our economy. All over the world, politicians and citizens are becoming more and more aware of this fact.

To support them, for over 30 years, OiEau has been training, acting and disseminating information on water management in France and worldwide.

Thanks to our know-how in information gathering and processing, OiEau is a major source of support for decision-makers. For example, in a drought crisis, we provide data and information for professionals and the general public, which enables them to make informed decisions and be responsive.

OiEau in fact targets everyone, by initiating various communications on water resource management, in particular with regard to drought. It raises awareness among the general public by publishing key figures on the various issues related to water resources management. It writes and publishes newsletters and monitoring bulletins. These include the AquaVeille newsletter (news on the water sector in France and worldwide / weekly), "Biodivaqua" (news on aquatic biodiversity / monthly), and "Flash Info Formapr'eau" (educational tools and training on aquatic environments).

OiEau also provides Summary Reports and Guides, accessible to all, on its website.

OiEau increasingly, and very regularly, uses its new website and social media pages (LinkedIn, Twitter, Facebook and YouTube) to share information in French, English and Spanish, on a wide range of topics, for specialists and non-specialists. As a recognised public utility association, OiEau has made the production, dissemination and sharing of knowledge one of its core missions, for the purposes of informing and documenting debate.

*“Supported by our partners, we strive to disseminate quality information for everyone, especially for citizens.”*

**Ms Comte**

Information and Knowledge Unit  
Coordinator - OiEau

# SANDRE, data for water management



©OiEau

OiEau is recognised by major public and private institutions for its management of data on water and its environment, in France and worldwide. In this capacity, it has acted as the Technical Secretariat of the National Administration of Water Data and Reference Systems (SANDRE) for 30 years.

SANDRE brings together public and private organisations to freely share data on water and its environment. To this end, it develops and publishes a technical reference system that guarantees the semantic and technical interoperability of water information system (WIS) data. WIS data concerns water resources, aquatic environments and their uses, and public water and sanitation services, covering mainland France and its overseas departments.

The WIS was introduced into the Environment Code (Article L213-2) by the Law on Water and Aquatic Environments of 30 December 2006.

Water management must respond to new challenges, accelerated by the effects of climate change.

For example, in the context of ecological planning, France has drawn up an action plan for 2023, the purpose of which is to ensure quality water for all and to protect the ecosystems. To facilitate and accelerate decision-making processes, particularly in times of crisis (flooding, drought, etc.), the data and its technical reference system must be produced and made available to all more quickly.

In order to provide the most accurate, accessible, understandable, exchangeable and usable data, SANDRE will logically continue to adapt. With its experience in operational research and innovation in France and worldwide, OiEau supports SANDRE's development as the Technical Secretariat with the aim of:

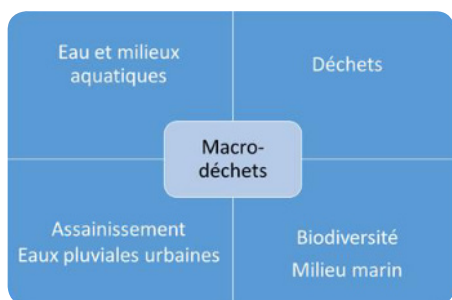
- increasing the frequencies of updates, monitoring and publication of the reference system;
- ensuring interoperability with other data on the marine environment, biodiversity, etc.
- sharing the data management experiences of neighbouring countries;
- increasing the competence of WIS players in producing and using the reference system.

## For some years, OiEau has been working on:

- interfaces for setting data controls (see figure);
- faster access to the reference system via Application Programming Interface (API);
- wider dissemination of the reference system, particularly through the semantic web;
- securing the reference system with ISO 9001 and 27001 certifications.



# Exploratory knowledge summary: management of aquatic macro-waste in rivers



©OiEau

OiEau regularly produces summaries, in order to share a common knowledge base.

Plastic bottles floating on the riverbed, bags stuck to the branches of willow trees on the banks, paper flying around and landing in the rushes...

There is far too much macro-waste in rivers and public policies are required to manage it. A number of initiatives have been set up to reduce, collect, sort and recycle the waste.

With the financial support of the French

Biodiversity Agency (OFB), as part of actions aimed at protecting aquatic biodiversity, an exploratory summary “Management of aquatic macro-waste in rivers” was produced by OiEau in 2022. It gives an overview of the different actions introduced to manage macro-waste in rivers, contributing elements of knowledge.

The summary focuses on all the aspects of managing macro-waste in rivers: public policies, reduction at source, research projects on flows and origins, actions relating to collection and sorting, community involvement. It is mainly based on grey literature or research reports, official documents, theses, etc., and on practical examples that illustrate the approaches identified.



#### More information at:

[www.oieau.fr/eaudoc/system/files/synthese\\_gestion\\_macrodechets\\_300322.pdf](http://www.oieau.fr/eaudoc/system/files/synthese_gestion_macrodechets_300322.pdf)

## Reinforcement of cooperation with Citepa



CITEPA

On 15 December 2022, the Interprofessional Technical Centre for Studies on Atmospheric Pollution (Citepa) and OiEau signed a cooperation framework agreement.

This agreement takes place both at organisational level, with cross-participation in the boards of the two associations, and at operational level, with several joint projects such as:

- rollout in Morocco, Tunisia and Pakistan of the RISQ solution implementing the enhanced transparency framework of the Paris Agreement;

- production of a web module for calculating fluorinated gas emissions, development of a mapping tool for the LULUCF (Land Use, Land Use Change and Forestry) inventory;
- technical discussions on document monitoring systems;
- Citepa's support for OiEau's low carbon strategy.

Other common projects will be examined in 2023.

# Atlas of shellfish production and relaying areas

OiEau supports the French Ministry of Agriculture and Food Sovereignty in its consumer protection mission to offer professionals an information tool on the health risks linked to professional shellfish production and harvesting areas.

Each Department for Land and Coastal Management (DDTM) or Department for Populations Protection (DDPP) organises the monitoring of coastal waters faced with the risk of microbiological or chemical contamination or the presence of toxins produced by micro-algae. The competent authorities then issue a prefectural order specifying the status of these zones and any measures to be taken by professionals, as well as the classification of the zones according to their operating constraints.

These orders, once transmitted to OiEau, are processed and then published in the Atlas of shellfish production and relaying areas. The status of the areas is therefore updated within 24 hours: the area is either open (shellfish harvesting allowed) or closed in the event of a health alert (shellfish harvesting prohibited). The classification of the areas is updated every 15 days.

In 2022, a number of avenues for development were identified in collaboration with the ministry and also with IFREMER. The prospects include the integration of water sample monitoring and analyses carried out prior to the issue of a prefectural order. OiEau is thereby strengthening its links with the coastal marine environment.

## Tools for coping with drought



France is experiencing periods of drought, causing serious problems for essential access to water and having a significant impact on aquatic environments. Thanks to its expertise in detection and information processing, OiEau is a major support for decision-makers, providing them with quality data, to enable them to respond better to droughts.

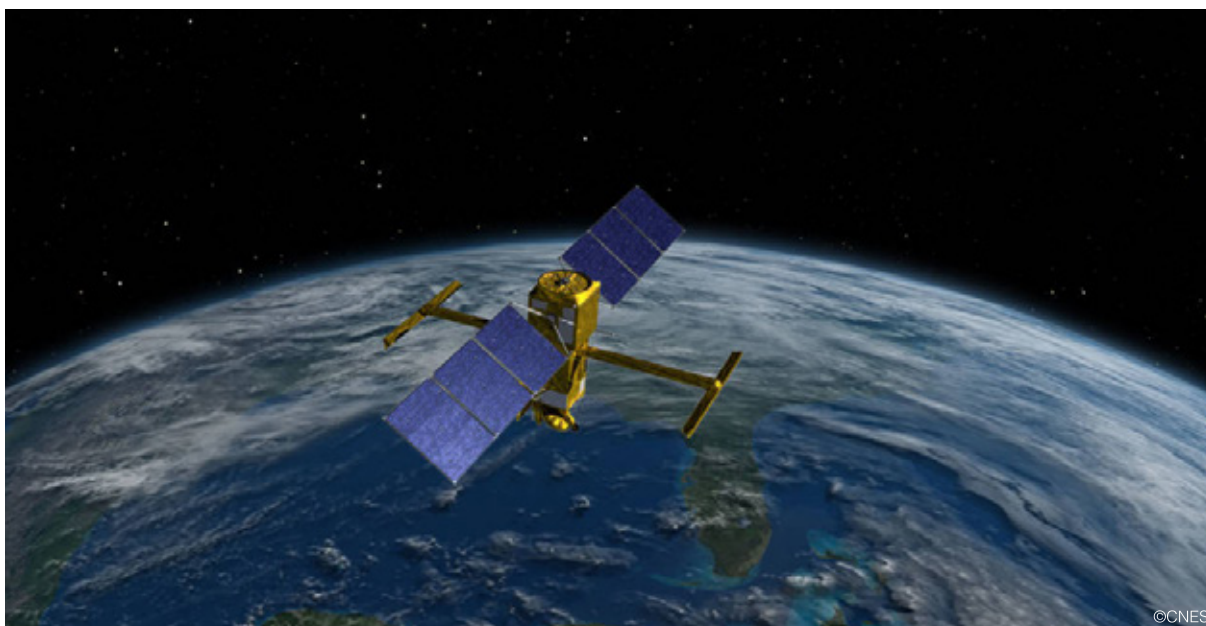
For over 12 years, OiEau has published the Hydrological Situation Bulletin (BSH), a document which provides a monthly picture of the French hydrological situation, financed by the French Biodiversity Agency (OFB).

Its main purpose is to provide an inventory of the quantitative situation of aquatic environments (rainfall, river flows, water table status, reservoirs), consisting of multiple comparable cartographic representations over time. In addition to this “practical” function, the BSH is a decision-making

tool for government services. In particular, it is consulted by the hydrological planning and monitoring committees (CASH) which may be held prior to periods of drought. In practice, OiEau is involved in producing this Bulletin and leads its editorial committee, consisting of all the contributors (Météo France, the Bureau of Geological and Mining Research - BRGM, the OFB, the Central Service of Hydrometeorology and Flood Forecasting Support - SCHAPI and each Regional Directorate for the Environment, Development and Housing in the basin area, and each public establishment managing dams and reservoirs), together with the Ministry of Ecological Transition. In addition to its contribution to certain analyses and comments, OiEau ensures that publication of the BSH meets the agreed deadlines.

Through its coordination of the Technical Secretariat of the National Administration Service for Water Data and Reference Frameworks - SANDRE (see p 23), OiEau disseminates the reference system for water abstraction, enabling better knowledge of the location of water abstractions in the environment and therefore of the pressures exerted on them. This reference system is used for the National Bank of Quantitative Water Abstractions (BNPE), the national tool for water resource abstractions in mainland France and the overseas departments.

## Rivers, lakes, oceans... observed by satellites



For quantitative aspects (water levels) or for monitoring the quality of water resources, satellites now provide very useful additional data.

For water levels, a specific satellite known as SWOT (Surface Water and Ocean Topography) was launched on 16 December 2022 by the french National Space Research Centre (CNES) and NASA. For the first time, it will be possible to measure seasonal variations in the water levels of rivers, lakes and oceans around the world. Changes in water stocks, river beds, flow rates and sea levels can therefore be measured.

With regard to surface water quality, algorithms developed by CNES and the French Research Institute for Development (IRD) now make it possible to use images such as those from the Sentinel 2 satellites to generate data on fundamental parameters such as turbidity, chlorophyll A, dissolved organic matter and suspended solids.

OiEau is very involved in these matters, as it has been leading a working group on space hydrology since 2014, bringing together research institutes (CNES, IRD, National Research Institute for Agriculture, Food and the Environment - INRAE), institutional stakeholders (French Development Agency - AFD) and private technical operators.

Since 2016, to improve the monitoring of water resources and strengthen the implementation of Integrated Water Resources Management (IWRM) at the International Commission of the Congo-Oubangui-Sangha Basin (CICOS) (see p 31), OiEau has been a partner in a SWOT preparation project applied to the Congo River Basin, which combines the classic "in situ" approach and the innovative use of spatial

altimetry. Other partnerships on spatial hydrology are in progress or commencing in Africa, in the Niger, Senegal, Volta, Gambia and Lake Chad river basins.

There is also close collaboration on the transboundary Maroni and Oyapock rivers involving French Guiana, Suriname and Brazil, in connection with satellite tools, as part of the Bio-Plateaux project (see p 41).

In addition, OiEau collaborates with the IRD and the CNES in developing satellite image processing, enabling regular monitoring of surface water quality, within the framework of a pilot project in Brazil financed by the FASEP (Fund for Private Sector Studies and Aid), with results that have been well received by the beneficiary organisations (basin agencies, sanitation regulation service, etc.) (see p 27).

***"CNES is sometimes too much of a "specialist" to represent the voice of the space sector, in terms of scientific and application observations, as well as in the different territories. OiEau plays a major role in putting spatial specialists in touch with end users, especially where in situ data is notoriously inadequate. It supports this value chain, making spatial data essential, as well as the application niches that are emerging around spatial data."***

Mr Picot, Project Manager - CNES



# Impact of urban waste: monitoring equipment & satellite treatment

With over 210 million inhabitants and barely 25% of urban wastewater treated, urban discharges into the aquatic environment in Brazil are increasingly affecting aquatic biodiversity, generating public health and drinking water supply safety problems.

Since August 2021, funding from the Private Sector Study Fund (FASEP) has enabled development of the “Monitoramento das Águas Residuais Urbanas e do seu impacto ambiental” (Monitoring of urban wastewater and its impact on the environment) project. The aim is to reinforce monitoring of the pollution generated by urban wastewater, to protect the quality of the water and aquatic environments of the river basins that feed the supply for Rio de Janeiro and São Paulo.

This project led by OiEau, in partnership with 12 French companies, has led to diagnostic studies, the installation of equipment for monitoring water quality (pH, temperature, dissolved oxygen, etc.) on five sites, and monitoring of the operation of a wastewater treatment plant.

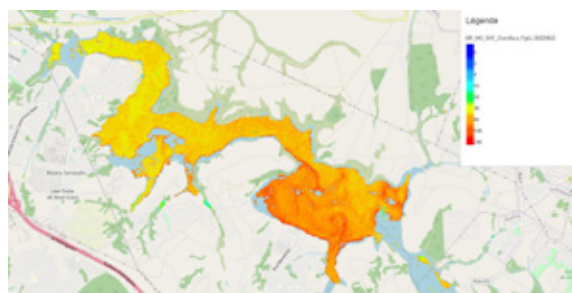
Following an agreement with the National Space Research Centre (CNES), the French Research Institute for Development (IRD) has applied the new algorithms to nine Sentinel 2 satellite “tiles” (images), in order to produce data on water quality (water surfaces, turbidity, chlorophyll-a concentration, etc.).

OiEau has developed products for online visualisation of this data, in the form of multiple dynamic maps and monitoring tables, for 90 virtual stations selected on the basis of managing the identified conflicts of use and the investments in sanitation financed within the basin management plans.



**More information at:**

[www.oieau-wiss.org/maru-br/fr/monitoring-satellitaire.html](http://www.oieau-wiss.org/maru-br/fr/monitoring-satellitaire.html)



Visualisation of chlorophyll-a on 22/06/2022. ©OiEau



Visualisation of turbidity on 22/06/2022. ©OiEau

## Strengthening information systems & shared data management, the example of the Mekong River Commission

To fulfil its basin management role better, in the context of decentralisation, the Mekong River Commission (MRC) identified the need to develop a Core River Monitoring Network (CRMN).

The CRMN is defined as a minimum set of stations and sampling sites, which will provide critical data for regional needs in a financially sustainable way, on five environmental issues: hydrology, sediments, water quality, ecological health and fisheries.

The CRMN conceptualisation study was entrusted to the Consortium consisting of OiEau, the Compagnie Nationale du Rhône (CNR), and the National Research Institute for Agriculture, Food and the Environment (INRAE). OiEau is

more specifically in charge of activities related to the MRC information system (common reference standards, metadata, data models, etc.), and data sharing procedures with the national services.

A pilot action, developed in connection with the OiEau missions in Laos for strengthening their national water information system (LAOWIS), helped to demonstrate the feasibility and interest for the MRC in reinforcing the shared management of data with government institutions. This was achieved through interoperability processes, building on existing information systems in the countries concerned. It represents a genuine contribution to the automation of sharing procedures and the strengthening of data quality control.

# TECHNICAL AND INSTITUTIONAL SUPPORT – COOPERATION

In 2022, support and cooperation activities made very satisfactory progress. In France and Europe, OiEau is a recognised pillar for supporting the transformation towards green, low-carbon water management, better adapted to climate change. At national level, this is demonstrated by the Explore2 (regional networking of climate models) (see p 39), Life Eau&Climat (basin scale) and Life Zeus (industry) (see p 44) projects, the adaptation of water governance methods to deal with shortages and better integration of Nature-Based Solutions (NBS).

Support for French local authorities includes transfer of their “drinking water and sanitation” responsibilities and improvement of their performance. With regard to changes in the water sector, digital transition continues, with the increasing use of new tools and working methods in all projects. Innovative technologies such as spatial hydrology (see p 26) are increasingly promoted in African and Latin American basins (see p 27), as well as highly original financial sustainability approaches. More broadly, the needs of river basins in European research and innovation programmes are at the heart of the Water4All project (see p 37).

International activities have returned to normal, although the health crisis has led to a change in some methods of intervention. Projects from different continents are presented in this report. There has also been considerable success with new European research and innovation projects. Through European partnerships and institutional twinning (see p 33), OiEau has contributed to improving water management in countries as diverse as Algeria, Azerbaijan, Georgia, Armenia, Moldova, Ukraine and China.

Finally, an ambitious partnership agreement involving seven African transboundary basin organisations was signed in December with the French Development Agency (AFD).

*“Climate change is exacerbating anthropogenic pressures around the world. Extreme events, such as floods and droughts, are more frequent and intense. How can we help our partners in the Southern hemisphere to adapt better? How can we develop nature based solutions? How can we learn the right lessons from the solutions used in Western countries? In terms of governance, knowledge management, planning, and financing of public policies, the expectations are enormous and are all sources of satisfaction for developing innovative projects adapted to each context, with genuinely sustainable structural impacts.”*

**Mr Bernard,**  
Head of Africa, Latin America, South East Asia  
Department - OiEau

## Research & Development: EDF, INRAE, Schneider Electric, historic partners

For several years, OiEau has supported Research & Development actions by private bodies and institutions.

In 2022, OiEau once again had the opportunity to offer its technical facilities for several research projects:

- Pumping platform for Schneider Electric: predictive maintenance on pumping installations with a frequency converter.
- External leak detection platform for INRAE: correlation between pressure in the drinking water networks and leakage rates.

Supervision of the PERICLES EDF laboratory (Chatou – France), updated and tested at OiEau before being reinstalled on the site.

It is used to manage infrastructures that simulate cooling circuits in nuclear power plants.



Pressurising the leak detection network with the INRAE mobile unit, designed by OiEau in 2020. ©OiEau



Updating supervision of the PERICLES – EDF laboratory. ©OiEau

## OiEau: partnering innovative contractors



OiEau plays a key role in scientific and technical partnerships for very specific support missions.

Assisting public and private contractors is one of OiEau's legitimate missions. Partners and clients appreciate us for our high level of scientific and technical advice, as well as our neutrality and independence. For example, along with other scientific and innovation partners, OiEau assists local authorities in setting up “test” processes for treating micropollutants discharged from Wastewater Treatment Plants (WWTP), by drafting the consultation documents, following an

initial feasibility study performed in partnership.

In the industrial sector, OiEau supported one of the NESTLÉ industrial sites in France, which wanted to house two food industry start-ups, on the condition that they independently carried out treatment of the effluents produced before discharge into the natural environment.

OiEau helped to determine the best treatment techniques, then took on a Contracting Assistance role by:

- defining deadlines and performances;
- setting up a consultation;
- analysing the bids in detail, including interviewing the bidders.

**“We were fully satisfied with OiEau and its partner, despite a very tight deadline.”** Mr Charbey, Industrial Projects & Market Packaging - Nestlé Excellence Supports France



# The problem of industrial and rain water: operational support from OiEau



OiEau supports PAVATEX, an Installation Classified for the Protection of the Environment (ICPE) subject to authorisation. Located in Golbey, near Epinal (France) since 2013, it specialises in thermal and acoustic insulators made from wood fibres.

It generates different types of industrial effluent from the processing zones, such as:

- heating and refining wood chips;
- wet treatment of smoke and dust;
- washing of press belts.

This effluent is discharged and treated in an industrial purification plant on a neighbouring ICPE; however, the latter wants to reduce its levels of pollutant acceptance at its entrance. PAVATEX must therefore reduce its pollution inputs at the plant head.

To assess the best solution(s) for reducing the pollution flows discharged into its industrial waters, PAVATEX commissioned OiEau to determine the effectiveness on each type of effluent of:

- physical pre-treatment;
- physico-chemical treatment;
- biological treatment.

In addition to this study, an analysis was carried out to improve the quality of the rainwater leaving the site and examine the feasibility of its internal reuse on the site.

These two studies are useful for dimensioning the treatment of industrial and rain water discharges from the PAVATEX extension project, the discharges must be treated on-site.

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## EDF Cordemais technical support

Faced with the challenges of energy transition, the EDF Cordemais power plant (France - Atlantic Loire) is studying the implementation of biomass pellet combustion (black pellets) to replace part of its coal combustion. In addition to the technical changes needed for this transition, the assessment of the environmental impacts of the storage of this new fuel must also be considered.

In this context, in April 2022, the EDF Cordemais (44) teams asked OiEau to assist them in identifying the percolates produced during outdoor storage of black pellets on their site.

In collaboration with the Centre Technique de l'Eau (CTE) in Limoges (87), various percolation tests and analyses of the percolates were carried out and an estimate of the quantity produced was calculated. The objective is to identify the best available techniques for the recovery of biomass percolates.

During this study, OiEau supported EDF in:

- defining the percolation tests suited to the context;
- identifying the best available technique (BAT) to recover or treat this effluent;
- presenting the orders of magnitude of investment and operating costs.

The project is currently being examined and on-site tests, performed by OiEau, should be conducted in 2023.



## FEXTE Bolivia: support for IWRM and sanitation policies



Bolivia is a country with a population of just over 11 million, which is rich in water resources due to its geographical location in the middle of the Andes mountain range. The spatial distribution of water is however very diverse, which represents a major challenge for the country. For this reason, access to water was recognised as a fundamental human right in its Constitution, in 2009.

Since then, the Ministry of Environment and Water has been promoting a more integrated management of water resources, organised by basin. Developing this kind of policy is a long-term process and, since 2021, the French Development Agency (AFD) has been supporting this approach via technical assistance focused

on capacity building and sharing experience, provided by OiEau.

For example, in April 2022, OiEau organised a study visit in France on the topic of managing multi-use structures with the manager of the Misicuni dam (drinking water, irrigation, hydroelectricity) and the Société du Canal de Provence (see p 43).

It was also an opportunity for OiEau to strengthen the inter-institutional dialogue in Bolivia between the Vice-Ministry of Water Resources and the Vice-Ministry of Drinking Water and Sanitation, to promote more integrated management of the water cycle in Bolivia.



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## Congo Basin: adapting to climate change

The Congo forest is the second largest tropical forest in the world. It plays a crucial role in climate regulation, by storing the equivalent of ten years of global CO<sub>2</sub> emissions. Its abundant natural resources are both an opportunity for development and a threat to its natural capital.

For over fifteen years, OiEau has been assisting the International Commission of the Congo-Oubangui-Sangha Basin (CICOS), in particular with support from the French Development Agency (AFD) and the French Global Environment Facility (FGEF), renewed in 2021, in adapting to climate change by strengthening knowledge and developing spatial hydrology (see p 26).

***“In this African basin, the important thing for member states is to take action. However, in order to implement projects on the ground, it is necessary to know the water resources this basin. And this project makes it possible to improve this knowledge through innovative technologies such as spatial hydrology. OiEau is therefore accompanying the Congo River Commission and its partners to achieve this objective.”***

Mr Brachet, Deputy to the General Manager - OiEau

## OiEau, vehicle for the European vision for water, in the Eastern Partnership countries



Wetland in the lower Kura catchment (Azerbaijan). © Ph. Seguin

The Water Framework Directive (WFD) is an important part of the European proposal to structure water management in Eastern Partnership countries.

To achieve this, OiEau makes a significant contribution to the activities of the “EU4Environment, water resources and environmental data” programme in Armenia, Azerbaijan, Georgia, Moldova and Ukraine, financed by the European Union, the Artois Picardie Water Agency and the Austrian Development Cooperation.

In countries under water stress, the WFD is not considered sufficient for quantitative management or adaptation to climate change. Specific approaches are therefore proposed by OiEau, on a basin scale, to find a balance between economic growth and the needs of the ecosystem (quantitative management plan, water accounts, etc.).

OiEau is also very involved in the production of river basin management plans, stakeholder involvement, development of open data, and the communication and visibility of this ambitious programme.

The local geopolitical context makes it difficult to achieve smooth cross-border cooperation. However, the vision and tools put in place in each country, following a similar approach, are intended to facilitate partnerships.

*“We are not solely driven by our international commitment to the European Union but by what the country really needs, otherwise it will be impossible to supply water in the years to come. We therefore welcome this movement and we will be actively involved. Similar plans must be developed and implemented in all the other basins.”*

Mr Chelidze,  
Head of Department -  
Ministry of Environmental Protection  
and Agriculture, Georgia

*“As part of the process of integrating European directives, we have greatly benefited from the EUWI+ project. As a logical extension, the new programme is in place to support us further in implementing a number of legislative improvements.”*

Ms Abrhamyan,  
Head of Department -  
Ministry of the Environment, Armenia



## Integrated Water Resources Management in Cambodia

Since 2012, with the support of the Rhine-Meuse and Loire-Brittany Water Agencies, OiEau has been working with the Ministry of Water Resources and Meteorology and the Tonle Sap Authority to implement IWRM on the scale of a pilot basin, the Stung Sen, in the north of Tonle Sap.

This decade of cooperation marks the beginning of a new planning cycle, reinforced by the activities of the WAT4CAM project component, financed by the French Development Agency (AFD), for which OiEau has had responsibility since 2021. The project aims to consolidate the implementation and governance of IWRM in Cambodia, through pilot experiments in the Stung Sen and Stung Sangker basins.

## Azerbaijan: reinforcement of climate and hydrometeorological services

Due to the effects of climate change, Azerbaijan and its population are most certainly facing an increase in extreme phenomena such as floods and drought in the years to come. To reinforce the country's capacity for monitoring and forecasting and limit the effects of these events, a European twinning project was launched in September 2022.

Within this framework, experts from French government departments and OiEau are working alongside their Finnish and Lithuanian colleagues to provide analyses, advice and training to the staff of the National Hydrological and Meteorological Services of the Republic of Azerbaijan.

The cooperation discussions are scheduled to run until mid-2024.

## Algeria-France: assessment of institutional European twinning



On 10 October 2022, Algeria and France celebrated the results of the twinning aimed at supporting modernisation of the National Water Resources Agency (ANRH), a key institution in the knowledge and monitoring of water resources in Algeria.

From September 2020 to October 2022, in its role as operator of the French Ministry of Ecological Transition, OiEau supported ANRH in its modernisation.

To provide ANRH with greater management autonomy, 25 French experts from mandated organisations were involved and 40 training workshops organised.

ANRH was able to develop an objectives and performance contract (COP) with its supervisory ministry as well as modernisation plans for its surface and groundwater monitoring networks, its laboratories, and for data banking.

The strengthening of cooperation should enable the two countries to continue protecting water resources, which are significantly affected by climate change.



# MANAGEMENT AND DEVELOPMENT OF THE NETWORK OF WATER STAKEHOLDERS

A stakeholder network is a community of people, organisations and institutions involved in the same field, who can exchange and share their knowledge, experience and practices. Stakeholder networks and their facilitation enable all members to increase their skills, in a peer-to-peer, co-training approach. Very often, the solutions found by some to cope with their problems can also be relevant for others.

Since its creation, OiEau has been involved in facilitating many networks of professional and institutional stakeholders, with the aim of achieving better, efficient and more sustainable water management. OiEau uses a number of tools to encourage participation and build lasting links between members: meeting days, webinars, exchanging feedback, web platforms in “resource centre” format, newsletters, online forums, etc.

The networks led by OiEau cover various water-related topics and relate to a variety of geographical areas, from interdepartmental or regional networks in France to the International Network of Basin Organizations (INBO). In addition to facilitating each specific network, OiEau is also keen to create links between them.

In a world subject to a number of constraints, as a public interest association, OiEau is keen to facilitate mutual understanding between water stakeholders, ensure good dissemination of information and experiences, and enable political and technical discussion. At a time when the role of water in international relations, whether conflictual or cooperative, is becoming more and more strategic, transboundary and international networks have a clear role as tools for promoting peace.

*“In a complex world, dialogue and discussions between stakeholders are essential, to enable us to respond collectively to the challenges we face.”*

**Mr Fouillet,**  
Scientific Mediator for “water and nature” - OiEau

# 20<sup>th</sup> International Europe-INBO Conference



©OIEau

The 20<sup>th</sup> International Europe-INBO Conference on the theme of the European Directives on Water was held in Anancy (France) from 26 to 29 September 2022. It was organised by the International Network of Basin Organisations (INBO) and OIEau, with the support of the French Biodiversity Agency (OFB).

Following two years of the COVID-19 pandemic, it marked a return to a 100% in-person format.

Against the backdrop of the Alpine peaks and Lake Anancy, finally relieved of a long drought by the heavy rain that providentially fell on the town during the conference, 200 participants from over 30 countries were able to exchange views on the implementation of European directives related to river basin management.

The “Water in the mountains” workshop, highly appropriate to a conference organised in the Haute-Savoie, which is famous for its mountains and lakes, provided an opportunity to discuss adaptation to climate change and the restoration of water courses.

Five themed sessions were also organised on the following topics:

- Restoring ecological continuity.
- Mobilisation and involvement of users.
- Good ecological status, WFD governance, large water cycle.
- Inter-sectoral coordination.
- International and transboundary cooperation.

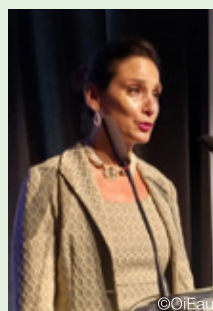
The Anancy Declaration is the result of these discussions. Its recommendations include strengthening basin governance, participatory water resource management and restoration of water course continuity in the European Union.

## More information at:

[www.riob.org/sites/default/files/documents/INBO%20UNWC%20Report\\_EN.pdf](http://www.riob.org/sites/default/files/documents/INBO%20UNWC%20Report_EN.pdf)

[www.riob.org/sites/default/files/INBO2022\\_Outcomes\\_v2.pdf](http://www.riob.org/sites/default/files/INBO2022_Outcomes_v2.pdf)

*“INBO has an extremely important role to play, and it plays it very well [...] by bringing together all the organisations involved in water management.”*



Ms Manfredi,  
“Zero Pollution”  
Director (ENV.C) -  
Directorate General  
for the Environment  
(DG ENV)  
Chair - International  
Commission for the  
Protection of the  
Rhine (ICPR)



## Drought and water resources: acting in the short and long term

Drought is an exceptional climatic event, characterised by a water deficit over a long or short period of time, very much dependent on local conditions (climate, type of vegetation, etc.).

It's a slow, gradual phenomenon that takes place over several months and can continue for several years in a row.


France has suffered from significant droughts in the last 30 years. A drought in 2022, which continued into 2023, had a considerable impact on many regions. These events pose major difficulties when managing water resources: negative impacts on aquatic environments, search for immediate solutions, the length of time required for actions on basin scale, need for monitoring, etc.

OiEau organised a web conference on the subject, as part of the Watercourse Resource Centre of the French Biodiversity Agency (OFB).

During the conference, 500 people responsible for professionals and elected officials managing aquatic environments were able to listen to



three testimonials and discuss this feedback. It was a valuable experience for the professional community, whose work is significantly disrupted by these extreme events.

 **The video can be viewed on the OiEau's YouTube account and a summary has been transcribed and published on our website.**

[www.youtube.com/watch?v=3vObQCcViHo](https://www.youtube.com/watch?v=3vObQCcViHo)

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## Podcast “The Little Streams”: better water management through nature



The local community, companies, local authorities or associations have all made commitments at their own level to protect biodiversity and water resources, and to participate in reducing natural risks in the context of climate change. “The Little Streams” is a 9-episode podcast in French, interviewing people who have led practical actions, whether on an individual scale or large-scale projects carried out over an entire region, in France.

The project leaders are given the opportunity to speak. They explain their motivations, the different stages of their projects and their feelings as the projects are implemented.

An informed immersion with people who are committed to the future.

 **To listen to the podcast:**  
[podcast.ausha.co/les-petits-ruisseaux-oieau](https://podcast.ausha.co/les-petits-ruisseaux-oieau)

# Fiware4Water: an innovative digital solution for water management

The main objective of the European Fiware4Water (F4W) project, coordinated by OiEau and funded by the European Union's Horizon 2020 research programme from 2019 to 2022, was to link the water sector to the FIWARE platform (intelligent solutions to help companies and developers create Internet services). The 14 partners demonstrated the capabilities and specific potential of the platform's interoperable and standardised interfaces for end users in the water sector.

Now that the project is complete, the F4W ecosystem continues to demonstrate technical, social and commercial innovation. Each dimension of social innovation was covered by the project's activities and results: technological solutions enabled the development of standardised materials for managing water utilities; capacity building was initiated in the second phase of the project with a series of *webinars* and workshops

and the production of an enriched book or *e-book*; and governance aspects were deployed via local water fora and the drafting of policy recommendations on digital water.

As such, F4W was a major contributor to the white paper “The Need for Digitisation of Water in a Green Europe”.

Finally, the commercial aspect was detailed in the *26 Key Operating Results of the F4W project*.

 **More information at:**  
[www.fiware4water.eu](http://www.fiware4water.eu)



# Water4All: European partnership for global water safety

Water is central to all the components of the European Union (EU) Green Deal and several United Nations Sustainable Development Goals (SDGs), starting with SDG 6 on “drinking water and sanitation”. The Water4All partnership, co-funded by the EU as part of the Horizon Europe programme, aims to guarantee long-term water safety for all, by stimulating transformations and systemic changes in the whole area of water research, and promoting links between the stakeholders.

Water4All brings together 81 partners in the Research, Development and Innovation (RDI) chain of 31 countries from the EU and beyond. This consortium will work together over the next decade to make substantial changes in and for the community. It began its activities on 1 June

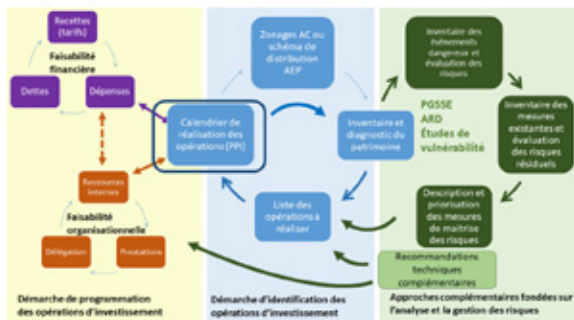
2022 and is currently ramping up its operations.

Within this framework, OiEau, as the Permanent Technical Secretariat of the International Network of Basin Organisations (INBO), is working to involve basin managers and the authorities responsible for implementing European policies to facilitate the interface between science and water policies.

 **More information at:**  
[www.water4all-partnership.eu](http://www.water4all-partnership.eu)



# WSP: OiEau's six years of experience working with French regional health agencies



A complete synopsis of the multi-year investment programme, incorporating risk-related issues, asset and performance management, and consideration of the resources available. ©OiEau/Cerema

The operation of a drinking water supply system requires effective management at every stage of the process, to reduce the health risks to the population.

According to the French Public Health Code, implementing permanent water quality monitoring must be carried out by the Person responsible for water production and distribution (PRPDE).

Since the beginning of January 2023, French legislation has incorporated the principles of the “Water Safety Plans” (WSP), promoted by the World Health Organisation (WHO) and set out in European Directive 2020/2184 of 16 December 2020.

Upstream, for the methodological aspect, the development of tools and the implementation of pioneering experiments have been widely promoted by the regional health agencies (ARS). Since 2017, in the Nouvelle-Aquitaine region, then in Provence-Alpes-Côte d'Azur, Occitanie and Auvergne Rhône Alpes (2022), OiEau has worked with the regional health agencies to boost the skills of their staff through training and technical support.

Our actions include the following:

- raising awareness among elected representatives during acculturation sessions with a view to accelerating involvement by the competent authorities in the approach;
- delivering training to make water services staff operational and encourage a shared understanding of the issues and the methodology;
- providing support to local authorities and sharing experiences;
- drafting and updating of guides and standard specifications;

- setting up surveys to analyse the level of involvement by local authorities in the process.

The WSP is an action for continuous improvement of water safety. Based on a sound knowledge of the department's assets and organisation, it leads to an inventory of hazards, identification of associated risks, analysis of the effectiveness of existing management measures and prescription and prioritisation of the management measures to be implemented to reduce the risks.

It will play an integral, leading role in strengthening the organisation and practices of drinking water utilities, through the WSPs that are now enshrined in the regulations.

## More information at:

Detailed best practice sheets and technical guide to adapting public procurement to make water and sanitation services more resilient in the face of specific hazards in the French overseas departments (OiEau / Cerema, 2023)

[doc.cerema.fr/Default/doc/SYRACUSE/594156/ameliorer-la-resilience-des-services-publics-d-eau-et-d-assainissement-fiches-detaillees-de-bonnes-p](https://doc.cerema.fr/Default/doc/SYRACUSE/594156/ameliorer-la-resilience-des-services-publics-d-eau-et-d-assainissement-fiches-detaillees-de-bonnes-p)





# A toolkit to mobilise local stakeholders on water and climate issues



Within the framework of the Life Water&Climate project - Supporting long-term local decision-making for climate-friendly water management (LIFE19 GIC/FR/001259), OiEau has developed a toolkit listing materials and actions to mobilise stakeholders, adapted to the needs of the project partners.

A bridge between a project and its implementation strategy.

To facilitate stakeholder mobilisation on the topic of “Water and climate”, this toolkit offers a range

of documents, communication materials, guides, links, technical files, and so on. The toolkit helps project leaders to choose their action, depending on the degree of mobilisation required, the target and their objective.

Six categories of actions have been identified and are described in a complementary guide to the toolkit. These correspond to the actions proposed by the project partners: promoting ambassadors, raising awareness, communicating, setting up participatory approaches, leading and guiding.

To complete the toolkit, feedback sheets on mobilisation actions, carried out by the project partners, are being produced and will be published shortly. The final version of the guide will contain recommendations for implementing mobilisation of local stakeholders.



**More information at:**

[www.pearltrees.com/lifeeauclimat/outils-mobilisation-acteurs/id53569154](http://www.pearltrees.com/lifeeauclimat/outils-mobilisation-acteurs/id53569154)

## Explore2: anticipating climatic & hydrological changes



Launched in July 2021 for a three-year period, the purpose of the Explore2 project, coordinated by OiEau and the National Research Institute for Agriculture, Food and the Environment (INRAE), in partnership with the Ministry of Ecological Transition, the French Office for Biodiversity (OFB), the Bureau de Recherches Géologiques et Minières (BRGM), Météo France, the École Normale Supérieure (ENS), the Research Institute for Development (IRD), the National Centre for Scientific Research (CNRS) and EDF, is to provide climatic and hydrological projections and to enable their use.

The aim of the scientific component, managed by INRAE, is to update these projections for mainland France, using a multi-scenario, multi-model approach.

A “user support” component, coordinated by OiEau, takes into account the needs of the users of these projections, to guarantee the understanding of the scientific results produced and their use.

In 2022, two reference networks on surface

and groundwater were finalised, to assess the hydrological models.

At the same time, two knowledge reviews of the situation in mainland France and the French overseas territories will put the Explore2 results into perspective. In the overseas territories, where scientific elements are lacking, in 2022, working groups were created to draw up an individualised roadmap to achieve local “Explore2” in the short term.

Finally, the climate models have produced projections that will be used in 2023 to feed the hydrological models, whose conclusions will be produced on a daily basis over the whole of the 21<sup>st</sup> century.

The data and results will be made available on the new national “DRIAS-Eau, les futurs de l’eau”, developed by Météo France, in the framework of the LIFE Water&Climate project coordinated by OiEau.



**More information at:**

[professionnels.ofb.fr/fr/node/1244](http://professionnels.ofb.fr/fr/node/1244)

# SOME CROSS-SECTORAL PROJECTS

Cross-sectoral actions have become key to sustainable water resource management, particularly on hydrographic or local scales with multiple uses. To make cross-sectoral actions a success, several areas are tackled in partnership:

- Awareness-raising, consultation and training: all the stakeholders must be informed and trained about water issues, through appropriate technical or more general training courses.
- Mastery of interoperable multi-sectoral information and data is necessary to impart knowledge on the resource, its uses and evaluate better techniques or management methods.
- Introduction of more participatory governance between regulatory or management bodies, civil society organisations, local communities, businesses and users, in the broad sense. This approach allows different needs and perspectives to be taken into account, encouraging the development of collaborative solutions.
- Changes in the regulatory or incentive framework: this may include protection of the resource, regulation or sharing of appropriate pricing and incentive mechanisms to promote investment in water-friendly technologies and practices.
- Use of technology and innovation: technological advances can play a key role in water management. Processes such as efficient irrigation systems, rainwater collection and treatment, reuse of treated wastewater, and water resource monitoring and management tools can contribute to more sustainable water use.

By integrating these different elements, we can reinforce stakeholders' responsibility and collective action to face the challenges of water in a more efficient and sustainable way, in the context of climate change, which has an adverse effect on the availability of resources.

For this reason, in complex, cross-sectoral projects, OiEau brings its experience to each of the action pillars developed for over 30 years. These projects are carried out at all levels in France and worldwide, in multiple formats and with national, European or international development funding.

In this way, OiEau increases the impact and effectiveness of its actions with a significant leverage effect, making the most of the unique group of skills and know-how it has built since it was created in 1991.

*“ Sustainable management of water resources is now based on equitable sharing of uses and in-depth knowledge of quantity and quality issues. This requires adoption of a cross-sectoral approach in our actions with all stakeholders, at all levels. ”*

**Mr Laroye,**  
Director of Sales, Marketing and  
Communication - OiEau

## Framework agreements, an increasingly appropriate form of public procurement



The complexity of the issues facing water stakeholders (crisis situations, improving service performance, impacts of climate change) requires “agile”, multi-expertise support of various kinds.

Multi-annual framework agreements enable public stakeholders to plan complex actions, the implementation of which is refined throughout the support period and formalised by subsequent contracts, reflecting the agility of the system.

More and more often, OiEau responds to these requests and implements ad-hoc actions on a long-term basis, combining skills assessments, training, technical expertise, organisational support and sometimes reporting or information management systems.

For example, Odyssi, the water and sanitation authority of the Communauté d'Agglomération du Centre de la Martinique (CACEM), called on OiEau to help improve its services, technically, financially and in terms of customer management.

*“It’s a complex and exciting mission, to be part of the decision-making and operational teams of a water authority such as Odyssi, and to respond to the challenge to support the change towards optimisation and continuity of service quality, by drawing on the skills and training of OiEau’s experts.”*

Mr Merlet, Permanent Expert in Martinique - OiEau

## BIO-PLATEAUX: cooperation in two transboundary basins



In 2022, the Surinamese, Guyanese and Brazilian partners in the BIO-PLATEAUX initiative continued their collaboration on the Maroni and Oyapock transboundary basins, within the framework of a dialogue facilitated by OiEau. A declaration was signed to launch the planning of a transboundary observatory on water and aquatic biodiversity by 2026. The master plan for

water development and management (SDAGE) for French Guiana 2022 - 2027 now includes a measure to “initiate transboundary management of water and biodiversity”.

BIO-PLATEAUX has enabled joint measurement campaigns in both basins, a strengthening of monitoring networks, training (spatial hydrology, environmental DNA), awareness raising (water classes), and sustained technical dialogue at regional level with the Amazon Cooperation Treaty Organization (ACTO).

Phase 2 of BIO-PLATEAUX (2022 - 2026) will contribute to the strengthening of knowledge and planning at basin level.

### More information at:

- Project website: [www.bio-plateaux.org/](http://www.bio-plateaux.org/)
- Project video: [www.youtube.com/watch?v=xI2SlYMxpk](https://www.youtube.com/watch?v=xI2SlYMxpk)



# CARIBSAN: filter-based sanitation in the Caribbean



CARIBSAN is a cooperative project between Cuba, Dominica, Guadeloupe, Saint Lucia and Martinique, launched in 2021 to promote the rollout of planted filters for wastewater treatment in the Caribbean.

Following just over a year of activity (September 2021 - December 2022), over 200 sanitation professionals were trained by OiEau in this solution. The Cuban National Institute of Hydraulic Resources (INRH), the water and sanitation company of Saint Lucia (WASCO) and Dominica (DOWASCO) have identified a site for their future planted filter sanitation plant. Studies have been launched to design the site in accordance with the land, the pollutants released and the population.

To choose the most suitable type of planted filters, a decision-making tool is being developed with the support of the National Research Institute for Agriculture, Food and the Environment (INRAE). CARIBSAN is supported by the political authorities of the five territories, who met during a mission to Cuba in May 2022 and at the CARIBSAN Forum in December 2022.

The CARIBSAN project (2021 - 2023), for which OiEau is the operator and the Martinique Water Office (ODE) is the lead partner, is co-funded by the European Union through the INTERREG Caribbean programme, within the framework of the European Regional Development Fund (ERDF), by the French Development Agency (AFD), and by the ODEs of Martinique and Guadeloupe.

*“Given the increasing cost of technology, it’s very important to be open to new options. This is a cost-effective solution, inspired by nature’s way of purifying itself.”* Ms Renwick, Laboratory Director - DOWASCO, Dominica water and sanitation company

## More information at:

- Project website: [www.caribsan.eu](http://www.caribsan.eu)
- 2022 results on video: [www.youtube.com/watch?v=TJW3Sronk08&list=PLj9wtOKNfNphYtiLU-2o4BJGP88fblc4D&index=14](https://www.youtube.com/watch?v=TJW3Sronk08&list=PLj9wtOKNfNphYtiLU-2o4BJGP88fblc4D&index=14)

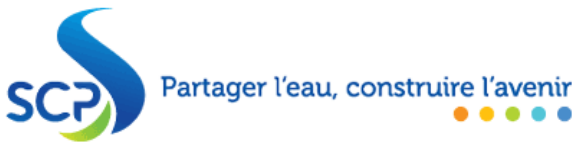


## CARIBSAN Forum

From 5 to 9 December, around 30 sanitation technicians and experts from Cuba, Dominica, France, Guadeloupe, Martinique and Saint Lucia came together in Fort-de-France (Martinique) for the first CARIBSAN Forum on the development of wastewater treatment plants using planted filters in the Caribbean.

During the week, the participants were actively involved in various workshops: getting to grips with a tool to help select channels and processes, monitoring the impact of discharges on the environment, reinforcing communications and validating training plans. They also presented the proposed sites for the construction. Expert level training was provided to Cuban partners. A field visit allowed the partners to see two operational sites in Martinique in detail.

# Partnership with Société du Canal de Provence



In 2021, OiEau signed a cooperation framework agreement with Société du Canal de Provence (SCP), which has been assisting local regions and their stakeholders on a daily basis, for over 60 years, to deal with water issues in a context of change and multiple transition: climate, ecological, energy, digital, and so on.

This agreement is designed to reinforce the joint actions and the special relationship between OiEau and SCP, a member of our Board of Directors, in the areas of vocational training, technical support and data management, in France and abroad.

In 2022, Reuse of Treated Wastewater (RWW) training was successfully co-facilitated by two RWW experts from OiEau and SCP.

A study was also carried out jointly by OiEau and SCP on the reuse of treated wastewater for one of the largest agri-food industries in France.

The results of this research helped to focus priorities on reducing, recycling and reusing.

This partnership will lead to a new training course at the Le Tholonet site (Aix-en-Provence) entitled “Safety of dams: organisation of the project owner and operator”.

## The plus points of this course

*“The major asset of this course is the educational quality of the trainers.”*

Mr Messin, Trainer - ENIL Training Centre, Besançon

*“The quality of the speakers, their relevance and availability, plus the quality of the documents.”*

Ms Bergot Guitton, Water and sanitation land management technician - Community of Mauges

*“The different speakers and the wealth of discussions with the speakers and the group.”*

Ms Arnault, Innovation Research Officer - Rhône-Méditerranée-Corse Water Agency

## Implementation of the UWWT Directive

OiEau has previously developed a platform for visualising national sanitation data and calculating compliance, the “SIIF-ERU” (Structured Implementation and Information Framework) for the European Commission (Directorate General for the Environment), which has helped to improve implementation of the Urban Wastewater Treatment (UWWT) Directive and public information, as well as reduce the administrative burden.

OiEau's support continued in 2022 through a technical support contract for in-depth and targeted assessments of implementation of the Directive in the European Union (EU) Member States.

From now on, OiEau will support the European Environment Agency in its takeover of the SIIF-ERU platform and produce reports that assess compliance by Member States with the UWWT Directive. We can also provide technical support on other relevant aspects of implementing the Directive.

Finally, given that the proposal for a new Directive was published in autumn 2022, OiEau will assist the Commission in the forthcoming technical discussions with the stakeholders for adjusting and maturing this program.

# Life Zeus Project: saving water in the agri-food industry



A building has been constructed to house the prototypes and the ZEUS laboratory. ©OiEau

A first in France and Europe, the Life Zeus project, co-funded by the Adour-Garonne, Loire-Brittany and Rhone-Mediterranean-Corsica water agencies, and supported by the European Union (EU) Life programme, aims to recover unconventional water in agri-food factories, to considerably reduce water abstraction by reusing treated wastewater on the industrial site, and to provide a full-scale demonstration of “zero water discharge”.

In a context of climate change, four partners (OiEau, the company Monin, the manufacturer CHEMDOC WATER and the National Institute of Applied Sciences in Toulouse - INSA Toulouse) have been anticipating the risks of water shortage for three years and are proposing a demonstration project that will massively reduce the water needs of an agri-food company, by reusing industrial wastewater after treatment.

Following tests in the INSA laboratory, membrane separation techniques have proved to be effective

for the separation of water / sugars / salts. The pilot installed on site by the partner CHEMDOC has delivered promising results.

In 2022, the 1:1 scale demonstrator was prepared on the Monin factory site in Bourges. The building planned to house the REUSE facilities (two membrane filtration prototypes) and the water quality analysis laboratory was constructed.

In 2023, the next key stage of the project is the commissioning of the demonstrator in the Monin plant, for a period of two years.

The water produced and reused in the process will match the quality of food contact water.

The project aims to contribute to changes in regulations, to remove obstacles to the recovery of unconventional water in the food industry, demonstrate the environmental and economic impacts of the approach, and thereby reproduce the process in other industries.

As a partner, OiEau provides expertise on the quality of the reused water throughout the project.

Finally, the project will provide a methodology and keys to success through training and enriched guidelines produced by OiEau.

***“Those who act first will be the last ones to turn off the tap.”***

Mr Lanouguère, Project Manager, Life ZEUS - Monin

 **More information at:**  
[www.life-zeus.eu](http://www.life-zeus.eu)



# Limoges Metropole: major works on the main WWTP



Since 2020, the main Waste Water Treatment Plant (WWTP) in the urban community of Limoges (285,000 population equivalent) has been undergoing a major overhaul. Modernising the equipment, safety measures and energy optimisation, with the biogas produced by sludge digestion being injected into the municipal gas network, are all part of this major project, which is scheduled to be fully operational by January 2024.

As a member of the project management consortium, OiEau is providing support to Limoges Metropole, the project owner, on several levels.

Firstly, prior to the project, by analysing the energy consumption of the equipment and its

optimisation, including biogas production, and subsequently, by expert appraisal and assistance during the commissioning of new facilities.

Lastly, OiEau is responsible for the project communications, designing and updating a website that tells the history of the project, the latest news and numerous photos and videos of the various construction phases. Here you can see some remarkable photos of the inside of the empty structures (primary clarifier, sludge storage tank, digester).

In response to Limoges Metropole's wish to promote understanding and interest in the project, OiEau has also designed mobile media, which are used to accompany visits and provide an educational overview of the modifications to the new WWTP.

One of the key moments of 2022 was the official opening of the site during the Heritage Days. Over 150 people came to find out about the water cycle managed by Limoges Metropole.

An informative and technical tour to discover everything about the operation and maintenance of the networks and wastewater treatment.



**More information at:**

[www.step-lm.fr](http://www.step-lm.fr)

## Building and sharing knowledge

Building and sharing knowledge has been a central aspect of OiEau's work since it was founded.

This activity consists in:

- collecting information, data and maps for informational and strategic monitoring;
- protecting knowledge by collecting, organising and articulating it;
- developing and sharing it;
- enriching it by producing analysis and summary documents, educational and outreach materials.

For over 30 years, OiEau has been assisting public and private institutions in France and throughout the world to make better use of the knowledge acquired on water and its environment.

It provides tailored advice to simple organisations or more complex, multinational organisations.

Since knowledge takes many different forms, it is shared in a variety of formats and methods. As the scope is both national and international, a range of good practices and IT tools are used to target important data, produce or collect it, and capitalise on it by sharing it within the organisation according to its geographical, regulatory or strategic context, etc. These systems are specifically based on a digital knowledge base, developed by OiEau.

These practices and tools support decision-makers in their daily strategy development, public speaking and activities.

2022 was a pivotal year for OiEau.

In two years, the association has succeeded in rebuilding both its turnover and the level of equity it had before the health crisis.

Thanks to the efforts of its teams to improve project management, anticipate margins and keep costs under control, the association has recorded its best net results since it was created: + €594K.

This opens up new investment opportunities, both in terms of human resources and infrastructure. However, OiEau must continue recruiting to meet the high demand for all its activities, and renovate its various sites, in particular to meet the “low-carbon target” launched at the very end of 2022.

## €15.4M

IN REVENUE FROM ACTIVITIES IN 2022

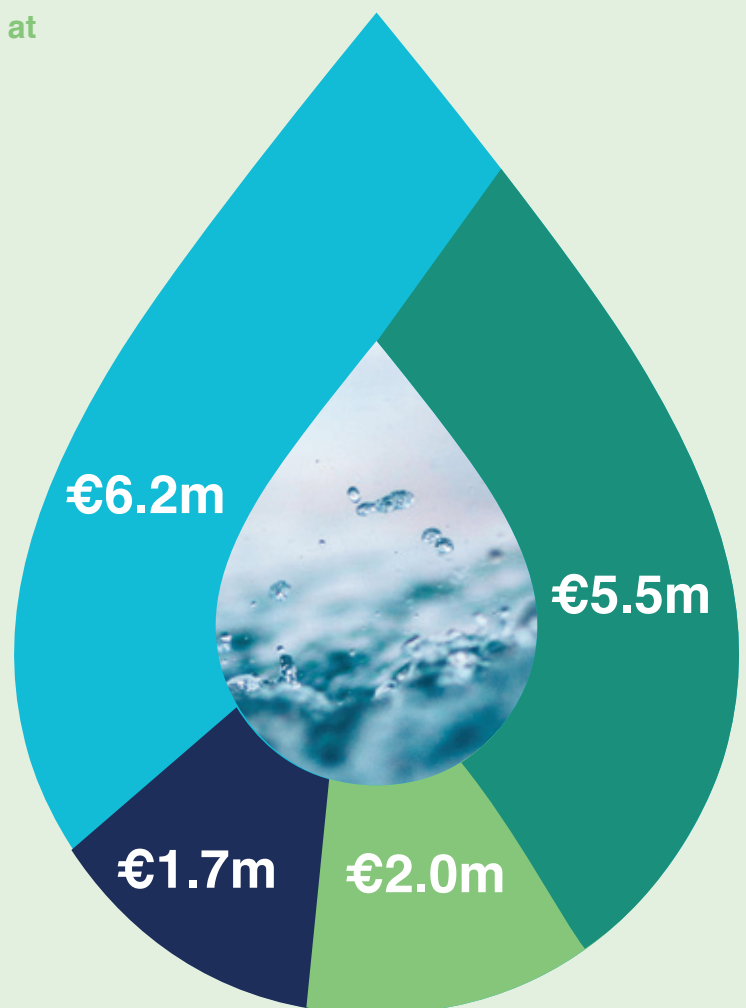
## 140

EMPLOYEES (PERMANENT AND FIXED-TERM)

### Statutory missions

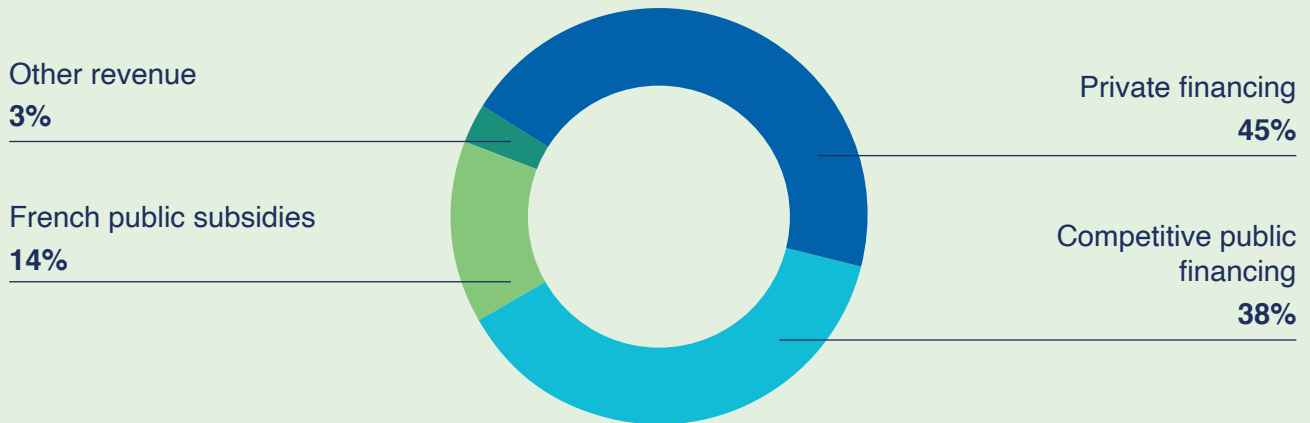
OiEau's revenue can be broken down according to its main statutory missions:

- *Research - Support - Consultancy*
- *Data - Tools - Information Systems*
- *Facilitating Stakeholder Networks*
- *Developing skills through Training*



### The main revenue families

OiEau's revenue can also be broken down into the main accounting families. This way, we can assess the proportion of French public subsidies, as well as the breakdown of turnover between private financing and competitive public financing (calls for tender, calls for expression of interest, etc.):



### Major expense items

For OiEau, the main expense items are Payroll, Purchases and Consumables, Depreciation & Provisions, and Taxes. The trend since last year is as follows (as a % of Operating Income):

	2021	2022
<b>Payroll</b>	<b>61.6%</b>	<b>55.2 %</b>
<b>Purchases</b>	<b>27.7%</b>	<b>31.7 %</b>
<b>Deprec. &amp; Prov.</b>	<b>6.1%</b>	<b>3.2 %</b>
<b>Taxes</b>	<b>3.2%</b>	<b>3.1 %</b>

## Challenges

In a very buoyant national and international context, OiEau has all the assets (in-house skills, responsiveness, adaptability, financial health, synergy of projects, etc.) to continue to develop and deploy its statutory missions even further.

The initial forecasts for 2023 confirm growth in operating income and a positive net result.

The association must continue to:

- maintain sufficient production capacity to meet demand (investment in human resources);
- continue modernising its tools (technical platforms, digitisation of certain actions and tools, remote project management, etc.);
- manage its growth by developing cross-functional approaches and reinforced internal procedures.



# PERSPECTIVES

## OiEau's young people share their vision of the future

To mark OiEau's 30th anniversary, a prospective reflection mission was entrusted to employees under 35 years of age. This exercise was conducted at the same time as the OiEau internal seminar in July 2022. Following lively debate sessions, they identified three priority thematic areas with practical recommendations for action.

### Environmental ambition

The environmental impacts of OiEau's activities, particularly in terms of greenhouse gas emissions, are generally recognised by everyone. A consensus was therefore reached on an ambitious approach to “avoid, reduce and offset” (energy, transport, digital and natural resources, waste), anticipating and even exceeding environmental obligations (e.g.: tertiary decree).

#### In terms of action, the following was proposed:

- set up an environmental footprint diagnosis (carbon audit initiated in partnership with Citepa);
- limit travel to the essential, invest in online exchanges, promote car-sharing;
- insulate our buildings, encourage energy saving and provide electric bicycles.

### Unity in diversity

The constraints imposed by being spread over four separate geographical sites and the diversity of roles can be overcome by horizontal working and teamwork. Many employees agree on the value of improving cohesion between staff, and the benefits of multiple locations.

#### In terms of action, the following was proposed:

- plan regular times for social meetings (virtual coffee breaks already in place, every last Friday of the month);
- draw up an integration route between sites and departments;
- get senior employees to sponsor new recruits, to facilitate their integration;
- attend in-house training courses, particularly for support services, such as the training course presenting the water sector (SK011).



### Engaged neutrality

A deliberately contradictory formula, which generated debates. Independence is preferable to neutrality. Engagement is good. Encouraging engagement by our partners and our clients is even better. This is the role of a public interest association, aimed at “developing skills for better water management”.

#### In terms of action, the following was proposed:

- confirm our positioning in our external and internal communications;
- set out clauses in our contracts;
- take account of this parameter when selecting our clients;

The young people welcomed this consultation initiative, indicating that they would like to repeat it, not only to follow up on the actions already implemented, but also to think up new ideas.



## The French water sector is recruiting!

In France, the water sector has 124,000 Full Time Equivalent (FTE) jobs (EDEC study, FFE, 2020) and has identified a very significant need to create around 13,000 jobs over the period 2020 - 2025:

- over 7,000 FTE to cover retirements;
- over 2,000 FTEs due to the NOTRe law which gives new competencies to the regions and redefines the competencies attributed to each local authority;
- over 1,500 FTEs due to investments in infrastructure;
- the broader issues within its scope (regulatory changes, drinking water networks, climate change, diversification of pollution, rainwater, etc.).

The sector is already facing recruitment difficulties due to the large number of vacancies and the high concentration of needs.

Eight roles represent 55% of needs:

- maintenance technician / electromechanical engineer;
- instrumentation and measurement technician;
- automation and remote management specialist;
- scheduling and programming of works specialist;
- manager and design engineer;
- design draughtsman, GIS technician;
- technical sales representative;
- team leader (construction, operations, maintenance).

The industry players are in competition with each other for these profiles, but also with other sectors (industry or energy). The water industry is lacking in attractive salaries, but benefits from “environment” and “water territory” appeal.

OiEau helps to meet the very high need for skills and the recruitment difficulties through its training and educational engineering activities:

- OiEau's continuing professional development capabilities are substantial and comprehensive. They offer a secure solution for all sizes of organisation, on all traditional topics and new issues (job shortages, water resources, micropollutants, rainwater, management of aquatic environments and flood prevention - GEMAPI, etc.), offering a variety of training methods on our sites, which are equipped with 45,000 m<sup>2</sup> of teaching platforms, or on our customers' premises, or remotely.

- OiEau provides a detailed description of the roles, skills and activities at the level of the sector and its customers, to support training and initiate policies for managing jobs and career paths (GPEC) and training plans.
- OiEau helps to widen the profiles of recruitment difficulties, drawing on its continuous vocational training system which facilitates global “recruitment & training” reasoning.
- OiEau completes the certification system by delivering qualification training courses with certificates of competence, and participates in degree courses with initial training organisations.

In particular, OiEau has supported the Ariège Joint Departmental Syndicate for Water and Sanitation (SMDEA 09) in its preliminary assessment of individual skills, development and implementation of training courses, and assessment of the skills acquired.



*The SMDEA 09 manages the production and distribution of drinking water and the treatment of waste water in the department. We currently have 245 employees, spread throughout the Ariège region, covering a wide variety of occupations. For some years, we've been experiencing recruitment difficulties for certain positions, as has the entire water sector, so we decided to set up in-house training courses. The objective is to train our staff in technical roles in water, sanitation and networks, to alleviate recruitment difficulties and ensure a high level of technical skills specific to our installations. Following a consultation, OiEau became our partner in this innovative action. Our employees will have the opportunity to develop their skills and knowledge in these fields and finalise their training by validating their knowledge, delivered by OiEau, a key player in the water sector.*



**Mr Rescanieres,**  
Managing Director - SMDEA 09

# PERSPECTIVES

## Water & Town Planning: innovation and training for better adaptation

Water is a crucial resource for cities, which face the challenges of managing rainwater, protecting drinking water resources and preventing flood risks. Future prospects for water in cities focus on the adoption of innovative solutions and sustainable town planning.

### Town planning and integrated rainwater management

Rainwater management is a growing concern in urban areas that can be considered as “basin cities”.

The concept of the “basin city” is an innovative approach to urban water management that consists in seeing the city as a hydrological basin, where water is collected, stored, treated and used in a sustainable way.

It aims to reduce the impact of flooding and surface and groundwater pollution, as well as improve residents’ quality of life by creating green spaces and fostering biodiversity.

It relies on close collaboration between the different stakeholders and requires long-term planning and consideration of the impacts of climate change on urban water management.

Setting up a “basin city” involves the use of Nature Based Solutions (NBS).

### Nature Based Solutions (NBS)

NBS are approaches that use or mimic natural processes to contribute to more sustainable, efficient water management.

For example, they involve:

- artificial wetlands that mimic the functions of natural wetlands, such as wastewater filtration and flood retention,
- rain gardens that collect rainwater and filter it naturally,
- green roofs that reduce urban heat islands and absorb rainwater,
- vegetated troughs to slow down the flow of rainwater and encourage its infiltration into the soil,
- tree plantings that help reduce the effects of urbanisation by providing shade, absorbing rainwater, improving air quality and providing wildlife habitat,

• etc.

This desire for better land use planning is now enshrined in French law.

### Climate and Resilience Law and ZNA (France)

The Climate and Resilience Law was passed by the French National Assembly in August 2021. Its aim is to strengthen the fight against climate change and improve the country's resilience to its impacts. It contains several important measures, including Article 191, which sets out the Zero Net Artificialisation (ZNA) target.

The aim is to achieve a state of “zero net artificialisation” of the country by 2050, i.e. the artificialised surface may not increase and must be compensated for by restoring wasteland or damaged areas.

The law sets out a number of tools to achieve this target. However, it is important to note that the ZNA target is not a total ban on all land development, but rather an intention to limit urban expansion and preserve natural and agricultural areas.

This is an ambitious goal that will require coordination and cooperation between the various stakeholders.

### OiEau's actions

Through its training offer and the leadership it provides on behalf of the Water Agencies (Adour-Garonne, Loire-Brittany and Rhone-Mediterranean-Corsica), OiEau participates in the dissemination and appropriation of these good practices by public and private stakeholders.

In 2022, we launched a website containing feedback on the subject. Over 1,000 people registered for acculturation and awareness-raising webinars and around 100 trainees learned about this approach to water management in urban environments.



## Two questions to...



**Mr Loïc Fauchon,**  
President - World  
Water Council (WWC)

**“There is increasing talk of water scarcity. How do we cope with this new reality?”**

Demographics and climate are forcing us to “produce” more quality water, due to increased droughts and population growth, especially in megacities.

To do this, we will need imagination and innovation. For example, pumping deeper into groundwater, “making the invisible visible”, as UNESCO puts it; transferring water over greater distances, as in China; desalinating seawater and brackish water, which is already taking place in over 70 countries around the world, as the use of reverse osmosis has brought costs down to under a dollar per m<sup>3</sup>; recycling and reusing wastewater, which will undoubtedly play an increasingly important role once secondary or tertiary treatment is in place, as recycling is easy and inexpensive.

But simply having more water resources is not enough. We also need to consume less and consume better. Consuming less means firstly, making efficient use of all the innovations available to us now and even more so in the future.

We can't give details of all the measures here, but we can emphasise the benefits to be gained from the digital revolution. Digital technologies can be integrated at each stage of the water cycle to improve the water distribution value chain.

In addition, recent studies carried out in the United Kingdom with volunteer families showed that once they decided to make an effort, they were easily able to reduce their water and energy consumption by 15%, from the first year.



The 10<sup>th</sup> World Water Forum will be held in Bali (Indonesia) from 18 to 24 May 2024. Its theme will be “Water for shared prosperity”. ©WWC

**However, very few measures like this have been put in place. How can we remedy this?**

This is why, every day, we say to Heads of State and government, Members of Parliament and local elected representatives: “Water is Politics”.

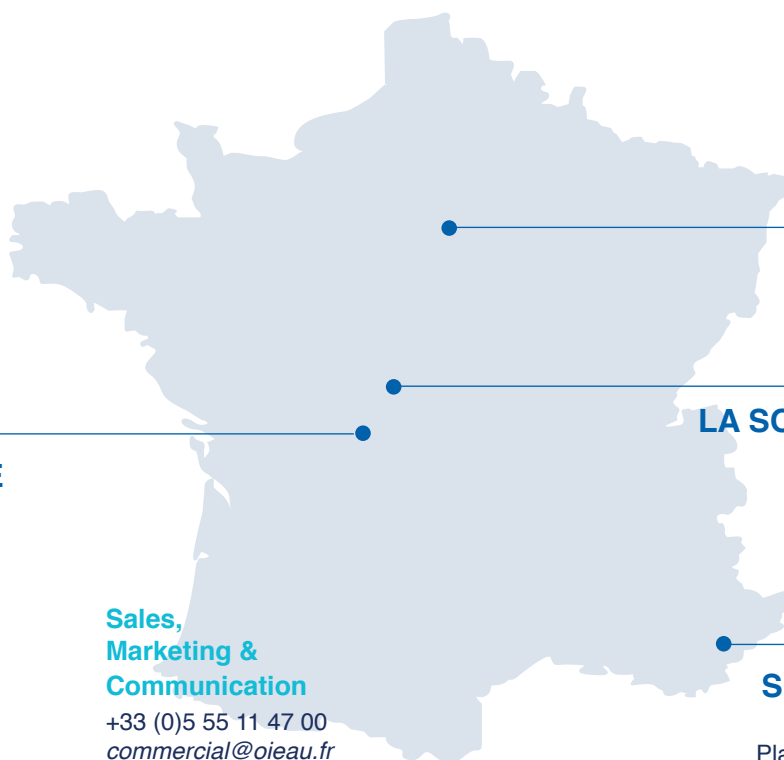
It's a strong, clear message that everyone can share, and one we must all commit to.

This commitment is on three simultaneous fronts: technology, funding and governance: the pillars on which water-focused political actions must be based.

We've already discussed techniques and technology. Funding also requires a capacity for innovation and imagination, to put in place new tools such as joint or blended finance, sub-sovereignty as a guarantee for local authority loans, but also true pricing (which particularly needs to be developed for water prices), new financial partnerships, and so on.

Finally, governance also needs to develop better international coordination, particularly in the emergence of public policies to secure water in national and transboundary basins. ”





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