OiEau
International Office for Water

ANNUAL REPORT 2023

DEVELOPING SKILLS FOR BETTER WATER MANAGEMENT

SUMMARY

WELCOME NOTE

2023 showed increased awareness among national and international bodies regarding water management. In March 2023, France adopted a “Water Plan” and, internationally, the United Nations organised the first conference dedicated to water since 1977.

These two examples illustrate the increasing mobilisation of decision-makers and citizens, which leads to a sustained dynamism in all OiEau’s activities; demand is high for all professions. Our turnover is now approaching €17 million for the first time.

OiEau’s key areas of expertise are still in very high demand: there are ever-present requests for training in drinking water production and distribution, along with sanitation, as well as the production and sharing of data and information on water, or support for local authorities, among other examples.

At the same time, our activities are diversifying and expanding, to satisfy partners in the agrifood or cosmetics industries, to strengthen cooperation in

Asia and to incorporate new technologies into our approaches, such as digital and space imaging. European projects were also one of OiEau’s great successes in 2023, a sign of the quality of our networks and our ability to build projects with high added value.

2023 also saw our low-carbon transition initiative become concrete, the first step being the completion of our greenhouse gas emissions report. OiEau is now reflecting on its practices, organisation and areas of expertise in order to offer an even more active response to the pressures of climate change.

Last year, we discussed the universal need for water security, for every citizen and for every region alike. This continues to motivate all OiEau’s teams, who are proud to share their solid and varied skills.

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" and "Training for local elected representatives" accreditation.

WORKFORCE & LOCATIONS

Nearly 150 employees spread over four locations in France. 45,000m^2 of teaching plateforms 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 2023, the board of directors met on 1st June, 21 July and 14 December. An **Ordinary General Assembly** also took place on 1st June.

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 1st July 2017.

ORGANIZATION OF THE TEAMS

GENERAL DIRECTORATE
6 people - *Paris*

SUPPORT – INSTITUTIONAL & TECHNICAL COOPERATION DEPARTMENT
40 people
Sophia Antipolis & Limoges

TRAINING & EDUCATIONAL ENGINEERING DEPARTMENT
Design and implementation of training courses - Studies - Laboratory - Digitization of training - Technical services
57 people including 35 permanent trainers
Limoges & La Souterraine

DATA, KNOWLEDGE ENHANCEMENT & INFORMATION SYSTEMS DEPARTMENT
Standardization - Tool - Processing – Digital Infrastructure – Information
27 people
Limoges

COMMERCIAL - MARKETING - COMMUNICATION DEPARTMENT
14 people
Limoges & Paris

GENERAL SECRETARIAT
HRD - Finance - Management control - Quality - Safety - Environment - Legal
10 people
Limoges

COUNTRIES WHERE OiEau OPERATES

27 EU countries

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

9 Mediterranean countries

Algeria
Egypt
Jordan
Lebanon
Libya
Morocco
Palestine
Tunisia
Turkey

11 European countries outside the EU

Albania
Armenia
Azerbaijan
Georgia
Kosovo
Macedonia
Moldova
Norway
United Kingdom
Switzerland
Ukraine

9 countries in Latin America & the Caribbean

Bolivia
Brazil
Colombia
Cuba
Dominica
Ecuador
Saint Lucia
Suriname
Mexico

22 countries in Africa

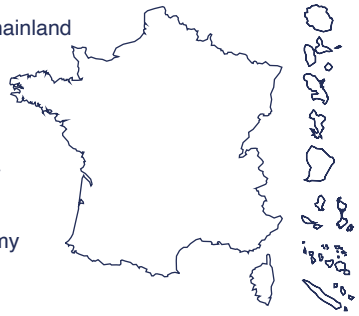
Angola
Benin
Burkina Faso
Cape Verde
Cameroon
Central African Republic
Chad
Democratic Republic of Congo
Gabon
Gambia
Ghana
Guinea
Ivory Coast
Kenya
Malawi
Mali
Mauritania
Niger
Nigeria
Republic of Congo
Senegal
Togo

9 countries in Asia & Central Asia

Cambodia
China
Kazakhstan
Kyrgyzstan
Laos
Tajikistan
Thailand
Vietnam
Indonesia

FRANCE Mainland & Overseas

All regions of mainland France
Guadeloupe
French Guiana
Martinique
New Caledonia
Mayotte
Reunion Island
Saint-Barthélemy



& 150 partner organizations

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.

> *OiEau mobilises and manages human skills independently and on a personalised basis for a wide variety of private and public sectors players, in order to meet their technical and environmental expectations or challenges. OiEau provides tried and tested or innovative solutions adapted to all scales on a wide range of issues.*
>
> **Cyrielle Perabout**
> *Marketing Development Office, 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

Project management assistance for the department of la Réunion .....p 17

Inter-company training for local authorities.....p 24

A network to combat macro-waste..... p 38

A webinar on the case law watercourses .....p 39

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

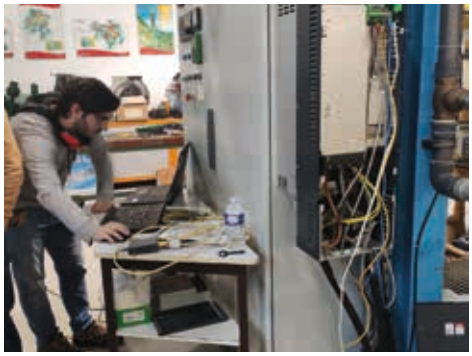
Water and Energy Optimisation: Audit, Tests, Advice and Assistance.

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:



OiEau supports manufacturers ..... p 19

Imerys raises employee awareness to water management.....p. 30

Reuse of treated wastewater in industry .....p. 47

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

Prospereau, a financial analysis tool for water utilities..... p 18

Drinking water, a constantly evolving issue .....p 26

MARU, to monitor urban wastewater in Brazil..... p 29

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

Success for the Water hub at Pollutec.....p 27

Focus on rainwater and stormwater.....p 47

CARIBSAN, wastewater treated by plants in the Caribbean.....p 43

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

SIIF, for monitoring the application of the UWWT Directive in the EU .....p 18

A water training center in Benin.....p 23

Training courses for staff of the Ministry of the Armed Forces.....p 24

SANDRE

Two major events for the Sandre...p 32

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 and associations

The DISTEP project tested at OiEau..... p 19

Documentalists explore AI ..... p 39

Explore2, to update knowledge on hydrology ..... p 41

Life Water & Climate, to improve access to hydro-climatic data..... p 42

WASH training for developing countries..... p 25

KEY HIGHLIGHTS OF 2023

JANUARY

25-26

CGLE exhibition

Rennes, France

FEBRUARY

15-16

Preparatory meeting 10th World Water Forum

Jakarta, Indonésie

See p 51

JULY

06-07

3rd International Conference on Water and Climate

Fès, Morocco

AUGUST

An Interactive map of OiEau projects online

www.oieau.org

SEPTEMBER

01

Launch of the Natalie project

See p 49

OCTOBER

10-13

Pollutec trade fair

Lyon, France

See p 27

MARCH

31

Launch of the portal DRIAS-Eau

See p 41

22-24

UN Conference on Water, New York, United States

New York, Etats-Unis
See p 51

APRIL

Drinking water, sanitation and hygiene in southern countries, carried out for Aquassistance SUEZ

Limoges, France
See p 25

MAY

20,000 followers on the OiEau LinkedIn account

JUNE

13-14

Regional Conference CARIBSAN

Fort-de-France, Martinique
See p 43

SANDRE

Update of the SANDRE Atlas-Catalogue

See p 32

DECEMBER

01

Launch of the SpongeScapes project

Delft, Netherlands

12

Launch of a network to combat plastic waste

France
See p 38

TECHNICAL AND INSTITUTIONAL SUPPORT - COOPERATION

To address the increased risks associated with water resources, OiEau promotes various technical and institutional solutions for better water management, the preservation of aquatic environments and adaptation to climate change.

To this end, OiEau provides **contracting assistance** that is part of broader and more strategic support, to guide different sector stakeholders towards improving their organisation, methods and fulfilment of their assignments. Among the organisations supported by our association are the city of Nouméa and the Departmental Council of Réunion (p. 17). In addition, OiEau offers a multitude of systems and resources, such as PROSPEREAU (p. 18), a financial analysis and forecasting tool made available to water and sanitation services.

Another dimension of OiEau's expertise lies in **technical assistance that is objective and neutral,** as it is not involved in any subsequent sale of services or equipment. A large number of manufacturers have asked us for help this year to reduce their water consumption while preserving their productivity and wastewater quality (p. 19). This technical assistance capacity is highlighted in order to drive innovation, as presented for the Distep project (p. 19).

Through numerous projects carried out on all scales in France, Europe and around the world, OiEau also provides **assistance in the context of institutional and/or organisational reforms** in the water sector, and in particular on:

- integrated water resource management, the implementation of individual basin management and the application of EU directives,
- management of water-related data, including support in setting up water information systems at all levels, from local to international,
- public service performance improvement and capacity-building.

OiEau facilitates the **exchange of experience and knowledge** between water stakeholders through information-sharing platforms, conferences and specialist publications. The activity can vary from very local up to large-scale projects such as supporting the implementation of the UWWT directive for the 27 European countries (p. 18).

"Climate change exacerbates water-related risks such as flooding, drought, pollution and the collapse of biodiversity. Readily available fresh water (rivers, shallow aquifers) is becoming a source of concern for all users: citizens, industry, agriculture and energy. In order to limit a shortage or conflicts of use, restrictions are becoming mandatory, such as the orders restricting use in France. Beyond restrictions, we need to put our energy into overcoming the long-term challenges we are facing. OiEau is more committed than ever to participating, proposing and promoting series of measures and combined solutions, adapted on a case-by-case basis."

Mr LOUCHARD
Director of Development, Partnership and Commercial activities, OiEau

Project management assistance: OiEau supports the Réunion department

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As Project Management Assistant, OiEau is supporting the Réunion Department in designing its 2022-2032 Departmental Water and Hydraulic Development Plan (PDEAH).

The PDEAH is part of the work and actions carried out for over 30 years by the Department in favour of its overall water management policy on the island. Its purpose is to define the future investments to be made by the Department to respond to the dual challenge of climate change and the expansion of irrigated areas in support of the agricultural sector. These investments also help secure the supply of drinking water to certain communities through the provision of untreated water.

It is a guidance and planning document, similar to a master plan, presenting the department's strategy for the water sector, which can be used for communication purposes. Its preparation includes extensive consultation with local stakeholders with whom the diagnosis, needs and envisaged scenarios are shared.

Overhaul of a water production plant : support for the City of Nouméa

The City of Nouméa and OiEau have been working together since 2013, particularly in the context of technical assistance missions. In 2023, the City of Nouméa has asked our association to provide independent support for the major project to overhaul the Mont Té drinking water production plant. A new plant will be built between 2025 and 2027 to replace the current one, which was built in the 1950s.

OiEau carried out an independent and objective study to identify the advantages and disadvantages of the types of works contracts possible, taking into account the technical specifics of the operation. The assistance continued with help in drawing up the tender documents for the project management team, followed by technical and legal advice on the analysis of the engineering bids obtained by the town after consultation.

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UWWT Directive: OiEau mobilised for its implementation

OiEau has previously developed a platform for viewing national sanitation data and calculating compliance, “SIIF-ERU” (“UWWTD - SIIF”), for the European Commission (DG ENV), which has helped to improve implementation of the Urban Wastewater Treatment (UWWT) Directive, reinforce public information and reduce the administrative burden. OiEau’s is providing continued support through a 2022-2024 contract, which includes reports on the compliance of Member States and technical assistance in various aspects of implementing the Directive.

The project is divided into four main tasks:

- Assessment of the compliance of Member States with the Urban Wastewater Treatment Directive (UWWTD), including detailed data analyses and the production of a consolidated report for the European Union (EU).
- Analysis of the responses of Member States to legal requests from the Commission, aimed at assessing legal compliance in infringement proceedings.
- Assessment of national investment plans for compliance with EU Cohesion Fund criteria, monitoring and adjusting where necessary.
- Technical assistance on the implementation of the UWWTD, including support on compliance algorithms and the creation of summaries per Member State to provide clear perspectives on national implementation.

After completing the 27 “Raw data assessments” to analyse and verify the compliance of articles 15 and 17 data provided by Member States and to identify gaps and areas for improvement in urban wastewater treatment, in accordance with the UWWTD, a Europe report was drawn up. It summarises the implementation status of the Directive in the EU (deviations and challenges). Finally, the project team has produced a chapter for each Member State, which summarises the results of the assessment of compliance with the Directive for a Member State, including analyses, graphs and conclusions. The project will be completed by the end of August 2024.

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Facilitating use of the PROSPEREAU tool for water and sanitation services

Since 2022, OiEau has made the beta version available of PROSPEREAU, its financial and prospective analysis tool for water and sanitation services. This tool has been specially designed for medium-sized local authorities (from

3,000 to 50,000 subscribers), who wish to study the impact of major changes (changes in scope, investment programme, etc.) on the financial situation of their department. It was developed with the financial support of the French Biodiversity Agency (OFB).

2023 was dedicated to testing by a small group of volunteer local authorities and the implementation of distribution tools. PROSPEREAU is now linked to an application form for access reserved for local authorities, general terms and conditions of use, and a trademark registered with the INPI (National Institute of Industrial Property). A user guide has been made available to users.

The next steps will focus on making PROSPEREAU easier to use and setting up a support service from OiEau. At the beginning of 2024, the tool was downloaded by around thirty local authorities. The two cycles of three induction sessions, free of charge for local authorities thanks to funding from the OFB, will give participants a general understanding of how to use it. These sessions will also help define the profile of the local authorities most interested in the scheme, specify their expectations of PROSPEREAU and specify the time and resources they are prepared to allocate to financial analysis.

For more information:

https://www.oieau.fr/eaudanslaville/prospereau

The OiEau pilot plant hosts the DISTEP project

View of the OiEau pilot plant. ©OiEau

When it comes to wastewater management, optimising treatment is key to protecting our environment. The National Institute of Applied Sciences (INSA) and the Mines-Télécom Institute (IMT) have joined forces to develop an innovative solution called “DISTEP”, based on artificial intelligence. This technology, combined with an ventilation regulation programme called “INFLEX”, aims to diagnose and improve the biological operation of wastewater treatment plants in real time. The principle is based on an in-depth analysis of O2 and REDOX signals, the dynamics of which are translated and interpreted as biological events. From this information processing, daily diagnostic reports are issued on the operating status of the plant, in particular the treatment quality and energy efficiency, including, if necessary, recommendations for improving the settings.

OiEau has played an essential role in the DISTEP project by allowing the INSA and the IMT to test a prototype version at its La Souterraine site. This remote and communicating version of DISTEP was installed on the wastewater treatment plant used for training. The communication protocols between the plant’s PLC and the DISTEP algorithm were tested for more than six months.

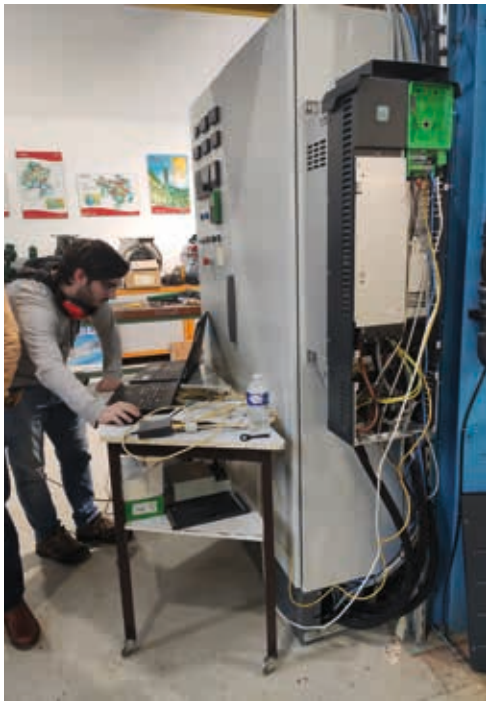
Through this project, OiEau proves its ability to contribute to the development of innovative technologies. As a partner of stakeholders in the field, OiEau independently facilitates collaboration between researchers and organisations in the water sector.

OiEau supports manufacturers

Climate change, with its periods of drought, is putting increasing pressure on water management and wastewater treatment for manufacturers. It is forcing them to adapt to ensure the sustainability of their activities, while complying with environmental regulations such as drought orders, Research and the Reduction of Releases of Hazardous Substances into Water (RSDE), and best available techniques. Faced with these challenges, companies can be encouraged to invest in more sustainable technologies and practices to reduce water consumption, recycle water and improve the efficiency of their wastewater treatment processes.

their short- and long-term developments, such as:

- Technical support for the operation of treatment systems and recommendations for improving operations and investment needs: T’Rhéa Montmorillon, Nestlé, CertiNergy, Coca-Cola, Mousline.
- Assistance in developing a strategy for reducing water consumption by 2030, including the use of unconventional water (rain, recycling, reuse of treated wastewater) and an economic approach with an estimate of the real price of water.



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Institutional strengthening and IWRM in Bolivia

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OiEau provided technical assistance, focused on institutional strengthening and experience sharing to the Ministry of Environment and Water (MMAyA) between 2021 and 2023, with funding of 1.5 million euros from the French Development Agency (AFD).

Support was provided for the consolidation of the national Integrated Water Resource Management (IWRM) policy, its governance, and its application in the Katari and Rocha pilot basins through inter-institutional basin platforms. Methodological guides were developed for a more cross-disciplinary and participatory approach to IWRM, with interconnected operational tools.

Wastewater management was addressed in an integrated way, with weak points in the sanitation chain identified. Practical materials were developed for water quality measurement, participatory assessment of sanitation, support for wastewater treatment plant operators and awareness-raising among young people.

An intersectoral dialogue led to a proposal for a national water database and interoperability schemes between existing information systems. These recommendations resulted in the creation of the Rocha basin pilot observatory and the strengthening of tools for monitoring the performance of wastewater treatment plants.

For more information:
youtu.be/b8XBrZXONC8?si=ExMrnladBLZXbzAW

The appropriation of IWRM in Laos and Cambodia

After 12 years of institutional cooperation supported by the Rhine-Meuse and Loire-Bretagne water agencies in Laos and Cambodia, the pilot projects to support the implementation of Integrated Water Resource Management (IWRM) led by OiEau are seeing local beneficiaries take ownership and adapt the concepts of IWRM to their specific contexts.

In Laos, a Provincial Basin Committee was set up in the province of Bolikhamsay to manage the water resources of the various catchment basins of the province, in particular the Nam Sa basin, which is a tributary of the Mekong. This cross-sectoral committee will support the implementation of the action plan through a dashboard developed with local authorities as part of the project.

In Cambodia, the new planning cycle is reflected in a gradual autonomisation of the Stung Sen Basin Committee with the provision of resources dedicated to its activities and the involvement of a facilitator. This person is responsible for boosting the committee's operations and the activities of the themed working groups set up according to basin priorities.

Alongside this, the WAT4CAM project, financed by the French Development Agency (AFD), supports the Stung Sen initiative and enables the experiments on the Stung Sangker basin to be replicated, while supporting the consolidation of the legal and institutional framework. Recommendations have been formulated based on an analysis of IWRM projects carried out in the country in recent years.

These local forms of appropriation pave the way for reinforced IWRM in these countries. They confirm the credibility of the experiments carried out, thus making it easier to replicate them and to increase IWRM on a national level, in particular by strengthening the legal and institutional frameworks.

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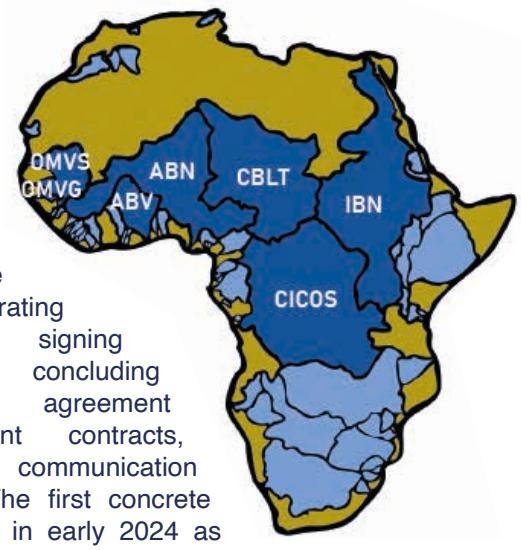
DYNOBA: boosting African cross-border basin organisations

The three-year DYNOBA project (2023-2025) financed by the French Development Agency (AFD) aims to strengthen the capacities of African Transboundary Basin Organisations (TBOs) in implementing Integrated Water Resource Management (IWRM).

The project is structured around four main components: the governance and financing of TBOs, strengthening water information systems, supporting the planning and management of infrastructure and biodiversity, and promoting new ways of sharing experiences.

OiEau is implementing this project and providing technical assistance to its beneficiaries, which are the Niger Basin Authority, the Volta Basin Authority, the Lake Chad Basin Commission, the Nile Basin Initiative, the Gambia River Basin Development Organisation and the Senegal River Basin Development Organisation. The African Network of Basin Organizations (ANBO) is also a key stakeholder in the project, as leader of the component dedicated to sharing experience.



Over the course of 2023, the team in charge of the project within OiEau set up the project's operating conditions: signing agreements, concluding a framework agreement for subsequent contracts, developing a communication strategy, etc. The first concrete activities began in early 2024 as part of partnerships and services involving consulting engineers and research institutions (National Centre for Space Studies, Research Institute for Development, etc.) to carry out activities for the benefit of TBOs and the ANBO.

EU4Environment in Eastern partner countries: water resources and environmental data

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2024 is the final implementation year of the "EU4Environment – Water Resources and Environmental Data" programme, which promotes the European Union (EU) Water Framework Directive and the Sustainable Development Goals (SDGs), in the Eastern Partnership countries of the EU – Armenia, Azerbaijan, Georgia, Moldova and Ukraine –, the latter three of which are now candidates for entry into the EU. OiEau is working in partnership with the Austrian Environment Agency, the Austrian Development Agency, the Organisation for Economic Cooperation and Development (OECD) and the United Nations Economic Commission for Europe (UN/ECE).

OiEau's activities cover catchment basin planning, Nature-Based Solutions (NbS) and integrated data management, as well as communication and awareness-raising.

Per-basin management plans are being developed in Armenia (Debed and Aghstev and sub-basin of Kazakhstan), Georgia (Enguri and Rioni) and Ukraine (Dniepr). NbS are promoted to improve the availability and quality of water and mitigate risks. Based on workshops and field visits with stakeholders, a NbS catalogue for measurement programmes is being developed.

OiEau helps its partners improve the availability of environmental data through public portals for decision-makers and citizens. Water accounts are also being drawn up to help formulate public policies.

The awareness-raising activities conducted by OiEau include events that coincide with the international and EU agenda. OiEau experts also gave a course on the water-energy nexus aimed at students from five countries, as well as a lecture at the French University of Baku in Azerbaijan (UFAZ).

CONTINUOUS TRAINING FOR WATER AND ENVIRONMENTAL PROFESSIONALS

2023 was marked by very intense vocational training activity, with our clients expressing a strong need for face-to-face training, on traditional topics such as networks, rainwater, purification and production of drinking water (see p.26), in particular. The number of participants enrolled in OiEau's inter-company training courses has once again increased significantly, as has intra-company training activity.

In France, OiEau is seeing an increasing number of regional authorities (see p. 24) and public operators among its clients, but the proportion of private customers remains significant. The very wide variety of trainees at the OiEau Training Centre is always a strength.

Internationally, training activity has also been intense with a strong synergy between training and technical support missions in different countries such as Benin (see p. 23), Côte d'Ivoire, Guinea, Cameroon, Cape Verde (see p. 23), Tunisia, Morocco, Palestine (see p. 23), Switzerland, Luxembourg and Cuba.

Remote training is now well established, with 600 people trained remotely in 2023 and a wide range of online training types (synchronous and asynchronous training, connected classes, hybrid training, virtual tours, videos on specific skills and operations, etc.).

2023 saw us **design several new projects to upgrade and expand** our training and technical support infrastructure. For the La Souterraine site, OiEau has designed an integrated development project, divided into various cohesive phases of work and long-term investment. The first phase of the project involves renovation works on the building for technical services and technological testing in the living lab, and the construction of a new teaching building dedicated to practical and demonstration work on changing topics in the water sector such as "Automation, remote management", "Electrotechnical maintenance" and "Sanitation network". At the Limoges site, a new educational platform for the development of Nature-based Solutions in urbanised areas and the renaturing of the site will be implemented in 2024.

"One of the key strengths of the "Drinking Water Treatment Plant Operator" diploma course, delivered in Switzerland in collaboration with OiEau, is that it meets a real need in the field to optimise the operation of complex and expensive plants. It takes into account the target audience and their expectations by offering numerous practical workshops; while remaining flexible and adapting to the techniques and challenges of tomorrow. I would also like to emphasise the professionalism and skills of the OiEau trainers."

Ms SCHENK,
Drinking Water and Training Specialist at SVGW, the Swiss Gas and Water Association

These changes were made possible thanks to the great efforts of OiEau's teams and to the continued and renewed support and confidence of our clients.

+ 45 years of experience

35 permanent trainers

300 training programs

& 560 sessions per year

5,300 people trained in 2023

17,000 training days

All levels: workers, technicians, executives

Face-to-face, distance and digital training

45 000 m² of educational units for work situation scenarios

Cape Verde: water utilities receive training at OiEau

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The OiEau hosted eight water service agents from Cape Verde, thanks to the support of Amiens Métropole, the French Development Agency (AFD) and the Artois-Picardie water agency. These professionals were able to expand their knowledge of wastewater treatment and the operation of wastewater treatment plants. The arrival of this fourth group from Cape Verde reflects the relationship of trust and mutual satisfaction between Amiens Métropole and OiEau.

Experts from OiEau also visited Cape Verde for a diagnostic mission on two seawater desalination units and to boost skills on this topic.

"In addition to the technical skills and its unique training platforms, we also appreciate way that OiEau listens and adapts to the administrative constraints inherent in international cooperation."
Ms Dapsance, Director of European and International Affairs at Amiens Métropole.

Educational engineering: a School of Water and Sanitation Professions in Benin

Aerial view of the Sèmè City campus project in Benin.
© Cabinet TERRENEUVE

Benin has embarked on a process of reforming its educational system and has entrusted the Technical Education Development Agency (ADET) with – among other things – the construction of a school dedicated to the water and sanitation professions (EMEA) which will accommodate more than 700 students on technician and senior technician courses by 2025. OiEau is supporting ADET in producing the training syllabuses and issuing recommendations for the fit-out of the premises and the educational equipment. This project is being carried out in collaboration with the Water and Environment departments of the University of Limoges and the Lycée d'Ahun, historic partners of OiEau. Close consultation with architects and prime contractors has enabled plans to be drawn up in order to publish tender documents.

Palestinian water professionals training at OiEau

In May 2023, professionals from the Water Department of Beitunia Municipality (Palestine) were trained on drinking water distribution networks at OiEau. This first part followed an additional on-site project in Beitunia where an OiEau trainer delivered training on pipe-laying sites in the city. This project was part of a decentralised cooperation scheme led by Eau du Bassin Rennais (EBR), coordinated by the NGO HAMAP-Humanitaire, with the support of the French Development Agency (AFD) and the Loire-Bretagne water agency.

"EBR agents, especially newcomers who have recently left school, come to OiEau where they can find a technical training offer that complements their initial training, on all activities in the water sector, and particularly in terms of network operation. As part of our partnership with the city of Beitunia, OiEau's history of working in Palestine and its knowledge of the field made it a natural choice for us." **Mr Martin,** Network Manager – Eau du Bassin Rennais

Regional authorities: inter-company training

In 2023, OiEau offered nearly 500 catalogue sessions, spread over more than 300 training courses covering the big and small water cycles.

More than 2,400 private and public-sector professionals, including a large proportion of regional authorities, took part in these inter-company courses, most of which were held at our Limoges and La Souterraine sites.

"Local and regional authorities are investing in the skills development and training for their agents in order to meet quality and public service commitments, as well as the challenges of adapting to climate change. They represent 33% of our learners." says **Mr Furlan,** Head of the Administrative Division of the OiEau Training Centre

Among the local and regional authorities that enrolled their agents in 2023 are:

- Le Havre Métropole, in particular on the installation and regulation of drinking water networks, as well as on the operation, testing or rehabilitation of sanitation networks,
- the Conurbation Community of La Rochelle, on operating urban wastewater treatment plants and in CATEC© (proficiency certificate for working in confined spaces),
- Annemasse Conurbation, on various topics relating to drinking water networks, as well as the operation of electrical installations in water plants.

The Urban Community of Limoges Métropole, the French Riviera Conurbation Community, the Métropole de Rouen Normandie, the Albères Côte de Vermeille Illibéris Federation of Municipalities, Rennes Métropole, Vienne Condrieu Conurbation, the Urban Community of Grand Reims, the Pays Basque Conurbation Community, Paris Town Hall, and more have all continued to renew their faith in us for many years now.

Training French military personnel in water management

©OiEau

Since 2018, the French Ministry of the Armed Forces has actively committed to training its agents involved in water management, with a focus on missions related to IOTA (Facilities, Structures, Works, Activities) and hydraulics. The training provided to these agents is based on an OiEau participatory teaching approach. Learners are encouraged to play an active role in acquiring knowledge and skills. OiEau's educational facilities play an essential role in this training. They make it possible to simulate real-life situations for agents, allowing them to directly apply the concepts and skills they acquire.

"OiEau has a wide range of exhibition models, particularly on rainwater, which help to illustrate and simplify understanding, making it immediately more concrete. The training I've had has helped me a lot, because I don't have a scientific profile of my own. I have a better understanding of the purpose of my assignments, and it now enables me to take a critical view of the advice given by private organisations in the context of IOTA projects (installations, works and activities nomenclature)." **Ms DAVID,** Environmental officer - Defence Infrastructure Service

500+
Ministry of the Armed Forces agents trained between 2018 and 2023 on OiEau platforms

Drinking Water, Sanitation, Hygiene: a new training course dedicated to the context of developing countries

OiEau provides training for drinking water and sanitation professionals involved in decentralised cooperation, NGOs, foundations or as financial backers in southern hemisphere countries. The new training course, Water Sanitation Hygiene (WASH) in Southern countries (SK083) is aimed at project managers for Drinking Water, Sanitation and Hygiene in developing countries as well as professionals new to the WASH sector.

One of the major strengths of this course is its practical and concrete approach, focusing on technical aspects and realities in the field. It covers a variety of topics, such as harvesting techniques, basic chlorination, domestic water treatment, human-powered water pumps, latrine models and sewage sludge management techniques, as well as the promotion of hygiene and the community approach.

In 2023, Aquassistance – the international solidarity association for active and retired SUEZ Group employees – launched this training course. It is now available in the catalogue of the OiEau Training Centre in Limoges.

"This course not only involves technical understanding, but also cultural approaches through concrete examples related to the different operating contexts. The technical hall and educational platforms are extremely valuable to the technicians being trained." Learner testimonial

© O. Vieu, RCA, 2020

A closer look at the "Operating an Energy Recovery Unit" training course

Training in January 2024. © OiEau

Waste is treated using various techniques and processes. This can take the form of material, agricultural or energy recovery or landfill.
This training course relates to energy recovery through the thermal treatment of household waste, more commonly referred to as incineration.
Its objective is to provide the technical foundations for analysing and operating a waste heat recovery unit (WHRU) in compliance with regulations.

It consists of theory classes, case studies, edutainment and a visit to the Limoges Métropole Waste Energy Plant, which is essential to ensure that learners have properly understood the key concepts. There are many different audiences for the course and its four-day format facilitates discussions between learners, who are delighted to be able to share their own experiences.
At the end of this course, participants are able to specify the context in which incineration is used, explain the operating principle of a WHRU, and explain the processes available for the purpose of analysing malfunctions. They are also familiar with the regulatory context and environmental obligations of a WHRU.

For more information:

www.oieau.org/actualites/la-thematique-dechets-dans-la-formation-de-l-oieau

Drinking water production: an ever-changing training topic

OiEau drinking water treatment educational platform. ©OiEau

OiEau is constantly adapting to new regulations and new processes and equipment, particularly regarding the topic of drinking water production, since the new Directive 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption.

This European regulation was transposed into French law in December 2022 through two decrees (2022-1720 and 2022-1721) and 14 orders (WSPs, domestic networks, changes to quality limits and references, exemptions, health checks, self-monitoring, authorisation applications, etc.).

Many educational tools have been updated, such as the summary sheet of the thresholds for Untreated Water and Water intended for human consumption (DW) parameters, and especially the "Water quality parameters" booklet, which presents the origins of these parameters, the potential health effects they may have, the treatment processes that can be implemented to eliminate or reduce them, and the available means of measurement.

This new edition has been expanded by around twenty pages and includes nearly 100 parameters:

- parameters specific to bottled water;
- the new parameters of the Untreated Water/DW regulation: Per- and polyfluoroalkyl substances (PFAS), nickel, chlorates, bisphenol A, haloacetic acids, uranium; some parameters that are not of regulatory value but are of interest for monitoring.

This new regulation sets out the obligations concerning the implementation of the Water Safety Plans (WSP or PGSSE in France) that OiEau has been promoting since 2018 with initial support from the Nouvelle-Aquitaine Regional Health Agency (ARS).

Since taking these first steps on the theme, OiEau has continued to work on the implementation of WSPs. In 2023, we supported the ARSs of the Occitanie, Provence-Alpes-Côte d'Azur, Auvergne Rhône-Alpes and Centre Val de Loire regions. Almost 330 people participated in the OiEau's PGSSE technical days and training courses in 2023, divided into around twenty sessions, including the "Water Health and Safety Management Plans" training course held in La Souterraine and Limoges.

The organic micropollution already detected in water (pesticides and their metabolites) and the newly regulated ones (PFAS) are leading to advanced refining processes such as the optimisation of the adsorption stage on activated carbon and the installation of Low Pressure Reverse Osmosis (LPRO) or Nanofiltration (NF) membranes.

These treatment processes are developed in all professional training courses in drinking water production and, more specifically, the "Drinking water treatment – module 2: membranes, refining, sludge" course.

In 2023, there were more than 80 training sessions on drinking water production, or more than 180 training days, to meet the demand of around 800 trainees.

Controlling the quality of the water consumed and the increasing presence of micropollutants in the water require everyone to be vigilant in order to fully manage these technical issues.

Water Hub: a success at Pollutec!

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Water Hub is the result of a collaboration between four key partners in the water sector: OiEau, Christaud, Monreseaudeau.fr and the RX Pollutec trade fair, and is a 200 m² space dedicated to raising awareness of the water efficiency of drinking water supply networks, set up at the Pollutec trade fair in Lyon, which took place from 10 to 13 October 2023.

This educational space, divided into four sectors, made it possible to:

- **Reveal the invisible:** a multi-material and multi-brand network was set up to show the various components of a drinking water network and present the latest technological innovations. OiEau trainers were able to provide technical explanations to visitors throughout the 4 days of the trade fair.
- **Show what really goes on in the field:** an exhibition of documents from field work helped demonstration the changes to a network over time, as well as the problems that are sometimes recorded, such as leaks, corrosion and scaling.
- **Give technical demonstrations:** OiEau trainers led workshops on subjects such as small diameter deep-hole drilling, butt welding on polyethylene pipes and how to use a suction cup.
- **Organise a competition** with goodies to win!

A real success for Pollutec, the Water Hub concept will be repeated at forthcoming water sector trade fairs!

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We hear from…

Antony Theys,

Studies and Training Officer at OiEau

"In a world facing increasing challenges in terms of water management, the Water Hub has helped us to raise visitors' awareness of the importance of the pipe-laying profession and that of drinking water network operators. With this in mind, in partnership with Christaud from the SAMSE group (materials supplier) and Mon réseau d'eau (Communications Expert), appointed by RX, we decided to participate in running a platform to make the 'visible invisible', dedicated to the drinking water network at the Pollutec 2023 trade fair.

This initiative, which is not simply a commercial exhibition but also involves professional demonstrations, provided a unique framework for promoting technical skills. Revealing a network and presenting its innovations offered a genuine immersion in the technical and practical challenges faced by water professionals, making for more in-depth discussions.

By co-organising this type of event, OiEau was able to strengthen its role as a major stakeholder in education and the dissemination of information on technical rules and regulatory texts in the field of water management. By using our expertise in hands-on demonstrations and workshops, we were able to bolster our reputation in the training sector for water professionals. This also reinforces our credibility as an organisation capable of providing solutions to drinking water-related challenges.

As a trainer at OiEau through the Water Hub, I was able to explain our role as a key training stakeholder. This dynamic approach demonstrates our commitment to training the next generation of water professionals. Through in-depth discussions, we were able to showcase our knowledge and skills, both of which are important in order rise to the challenges of tomorrow."

KNOWLEDGE DEVELOPMENT AND WATER INFORMATION SYSTEMS

Since the 19th century, mankind has considerably increased the quantity of greenhouse gases in the atmosphere. The natural climatic balance has been altered and the climate is being readjusted by a warming of the earth's surface. We are already seeing the effects of **climate change** (droughts, floods, pollution), which are affecting water supply and quality.

France's water policy is based on four major pieces of legislation and framed by the **European Water Framework Directive,** which sets targets for achieving good water status. The 2006 law introduces the principle of the 'right to water' and provides for climate change to be taken into account. In France and around the world, elected representatives, economic players and citizens … are all involved in developing new solutions for better water management. In this context, data is the raw material for knowledge, understanding and action.

It was not until the RNDE (Réseau National des Données sur l'Eau - National Water Data Network) was set up following the 1992 Water Act, and which until 2002 brought together the main producers of public data relating to water, that we realised the importance and value of data, sharing it and making it available.

Following on from RNDE, the **Water Information System** (WIS) has now successfully met its challenge of making data accessible, usable and reusable via the web. Thanks to scientifically established data collection processes and shared reference systems, the WIS guarantees the reliability of data and its comparability with other data.

With, in particular, the **information systems on the marine environment and biodiversity, and on water,** which feed the European information systems, and more broadly the information systems on the environment, we are immersed in a large mass of multilingual information that is becoming unmanageable without the help of a machine. This is precisely where **Artificial Intelligence** (AI) comes into its own.

"AI requires large volumes of storage and computing power on a petaFLOP scale, depending on the complexity of the context. OiEau intends to rely on its IT infrastructure, which is in the process of obtaining ISO/CEI 27001 certification, and on parallel IT infrastructures to respond to these projects using AI."

Mr MEUNIER
Director of Data - Knowledge - Information Systems, OiEau

*Unit of measurement relating to the calculation speed of a computer system.

On a smaller scale, this is the case of the 'REMI' web project (p 31) on health monitoring in shellfish farming areas, carried out in partnership with the French Ministry of Agriculture. This project incorporates monitoring data acquired over time. These will be used to produce **decision-support indicators** and, on the basis of tried-and-tested decision-support models, to provide a new tool for authorities to help manage shellfish production areas.

Tests with AIs are being carried out on the basis of decision-making and learning models. Look out for the results in the next 2024 activity report...

Fasep MARU project: monitoring urban wastewater in Brazil

With around 50% of the urban population not connected to sewerage networks and less than 25% of urban wastewater treated, sanitation is a major challenge in Brazil. Against a backdrop of climate change, discharges of untreated wastewater are affecting the quality of surface water and aquatic biodiversity, creating serious problems for public health and the safety of drinking water supplies.

PURPOSE AND CONTEXT OF THE PROJECT

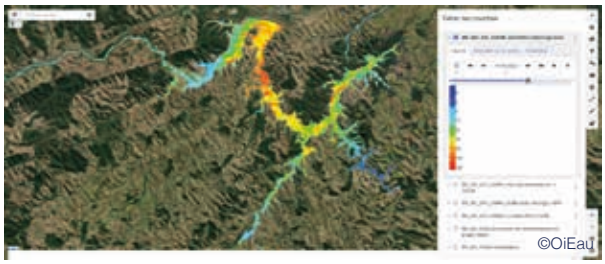
Thanks to financing from France (Private Sector Studies and Assistance Fund – FASEP), the M.A.R.U. pilot project (August 2021-December 2023) made it possible to increase monitoring of the impact of pollution generated by urban wastewater in two groups of priority river basins in Brazil: the basins of the Piracicaba, Capivari and Jundiaí rivers (PCJ agency) and the basins of the Paraíba do Sul and Guandu rivers (AGEVAP agency). They supply more than 12 million people and are the main source of water for South America's two largest metropolitan areas.

KEY ACTIVITIES AND RESULTS

- **Strengthening the continuous monitoring of water quality (in situ)** with equipment from three French manufacturers: Aqualabo, NKE, EFS. Six equipped sites including four river points and two wastewater treatment plants (inlet/outlet);
- **The use of satellites to strengthen the monitoring of water quality**
  - Processing **28 months** of Sentinel-2 satellite images on nine tiles:

©OiEau

  - **Over 6,000 Geotiff files** (IRD-CNES support) integrated by OiEau and used **to view four surface water quality parameters online: Chlorophyll A (µg/L); Suspended solids (mg/L); Turbidity (NTU); Coloured dissolved organic matter (m-1).**



- **Recommendations in an initial "Master plan for urban wastewater discharge data"-type document:**
  - Strengthening inter-institutional cooperation coordinated by the agencies and basin committees for data production and information services;
  - Developing the complementarity of in-situ monitoring with spatial hydrology;
  - Strengthening the capacity to integrate data and information services for better visualisation, downloading and interoperability (API, WMS, WFS) etc.

For more information:

Data visualisation products and project videos available on the project website:
https://www.oieau-wiss.org/maru-br/fr/

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Water resource management: IMERYS Group raises awareness among its employees

©Pixabay

Every year, IMERYS organises an awareness-raising day across all sites (170) around the world (46 countries) on health, safety and environment issues. In 2023, a workshop on water resources was held, provided turnkey by OiEau. Around 14,000 employees were therefore made more aware of the preservation of water resources through quizzes and several card games.

The aim of this workshop was threefold:

- Provide information on the natural water cycle and the different freshwater reservoirs by exploring the effects of climate change.
- Raise employees' awareness of water uses, the concepts of water consumption and sampling, and their impact on their workplace and their daily lives, for example by addressing their water footprint.
- Get teams to think about what they could commit to do to reduce their impact on the water resource from the following year onwards.

Among the expectations/constraints, it should be noted that the workshop had to be able to be run without the need for IT, but with the option of conducting it digitally if necessary. The format of the workshop had to be dynamic, in line with the different cultures of the countries, and equally suited to quarry and factory operators as to office workers.

OiEau provided printable workshop material accompanied by a Coordinator's Guide containing a glossary, additional explanations of the answers to the games and quizzes to fuel discussions. The illustrations were produced by OiEau in line with requirements and tailored to mining activity.

The IMERYS group implemented this workshop last September for its CONNECT DAY.

"OiEau was responsive to our requests and made plenty of suggestions during the workshop's development phase. We had very good feedback from all our teams around the world at the end of this day. This workshop fully met its objectives, namely to raise awareness among all our employees of global and local issues related to water and to help them better understand the impact that our activities can have on the resource."

Ms Fontaine, Environment Vice President, IMERYS and **Mr Peyre,** Group Environment Manager, IMERYS

OiEau supports manufacturers looking to explain, engage, mobilise and raise awareness among their employees, particularly the operational teams. It is by engaging stakeholders that efforts can bear fruit.

Automated processing of analysis reports related to coastal microbiological monitoring (REMI)

©Pixabay

Implemented by Ifremer since 1989 French National Network for Coastal Microbiological Monitoring (REMI) aims to assess microbiological contamination of the coastal marine environment via monitoring of the indicator bacteria Escherichia coli (E. coli) in live shellfish.

Since 2017, the Directorate-General for Food has initiated a transfer of the health monitoring missions of the shellfish farming areas to the French state departments in order to ensure the continuity of Ifremer's monitoring of shellfish.

The identification of resources available within the state departments involved (Departmental Directorates for Territories and the Sea and Departmental Directorates for Population Protection) highlighted the need to develop a simple, accessible and centralised steering tool.

In order to provide support to the state departments, OiEau has developed the REMI module, a web platform aimed at optimising the monitoring of microbiological contamination of shellfish and supporting the Interministerial Departmental Directorates in their decision-making.

This new tool automates the transmission of analysis reports produced by departmental laboratories, while checking Sandre compliance (see p. 32), which ensures the interoperability of the data received. Bacterial concentrations are automatically interpreted by the REMI module. The rules for the interpretation of the results are derived from the National Procedure for the microbiological health monitoring in shellfish growing areas. It describes the parameters to be taken into account in the health alert management process, and the types of alerts to be issued when necessary.

As such, when the concentrations of E. coli exceed regulatory thresholds, decision-making departments are immediately notified and can issue alerts to professionals and recipients of their choice via the web platform.

This tool therefore allows for alert monitoring during episodes of increased contamination risks linked to shellfish consumption (a decision-making tool for monitoring) but also longer-term monitoring via the traceability of the data fed into the marine environment information system.

©Pixabay

SANDRE: focus on two major events in 2023

©OiEau

On 24 January 2024, SANDRE published the maritime port dataset and version 1 of an administration document describing the methods of collection and dissemination for the dataset. These were added to the the Sandre technical reference framework for the Water Information System (WIS).

The SANDRE national working group on urban sanitation – whose members are the Ministry of the Ecological Transition and Territorial Cohesion, the water agencies, and certain operators such as SAUR, VEOLIA and SUEZ – has updated the SANDRE reference framework on self-monitoring of sewage treatment plants.

Various changes have been made in terms of:

Regulations:

- on the Release/Reduction of Hazardous Substances in Water (RSDE), following the technical report of 24 March 2022 drafted by the Ministry of the Ecological Transition. It focuses on the search for and reduction of micropollutants in untreated water and treated wastewater from wastewater treatment plants. This is part of a national and European programme aimed at reducing the pollution of aquatic environments by certain hazardous substances, given their toxic, persistent or bioaccumulative nature.
- on the Reuse of Treated Wastewater (REUT), following the European regulation on minimum requirements applicable to the reuse of water of 25 May 2020.

Practices:

SANDRE has made various changes to its reference framework, in particular on:

- plant semantics,
- events directly at the measurement point of the plant,
- the “A8” regulatory monitoring point for the discharge of treated waste water (REUT),
- the list of possible uses for REUT: Agriculture, Watering green spaces (excluding golf courses), Golf courses, Industry, Nature (e.g. replenishing a resource), Other uses,
- the new hazardous substances to be monitored for the RSDE programme (1.2 dichloroethane, Octylphenols, OP1OE, OP2OE).

In addition, new professional rules have been introduced to improve the quality of data exchanged on this subject.

For more information:

Two booklets accessible to all have been published.

https://bit.ly/3WRmSpy

AACs: sharing water data

The French website aires-captages.fr aims to provide and share data on Abstraction supply zones (AAC). A Abstraction supply zone is the area where human activities can cause pollution to drinking water resources. These perimeters are the zoning areas on which actions are implemented to combat diffuse pollution, generally from agricultural activity. It is essential to make them known in order to better protect them. In 2024, new data and indicators were added to the website. The latter cover agricultural occupation on AACs, the presence of wetlands, and the water quality of catchments. OiEau has worked on the provision of data on groundwater and surface water available in the AAC fact sheets. Automatic statistical processing is offered in order to better visualise trends. The aires-captages.fr website is run by OiEau with the support of the French Office for Biodiversity (OFB).

For more information:
www.aires-captages.fr

Close cooperation with Citepa

Citepa, an association whose mission is to guide Air & Climate action, and OiEau signed a framework cooperation agreement on 15 December 2022. This agreement covers both organisational aspects, with cross-membership of the boards of directors of the two associations, and operational aspects, with the implementation of several joint projects such as :

- the deployment in Morocco, Tunisia, Pakistan and Qatar of the RISQ solution implementing the enhanced transparency framework of the Paris Agreement,
- the development, for Pakistan, of a RISQ "Fluorinated Gases" platform dedicated to calculating HFC emissions,
- technical exchanges on documentary monitoring systems,
- support for Citepa in OiEau's low-carbon strategy.

Other joint projects are under consideration.

Drought monitoring: two reference tools

The Hydrological Situation Bulletins (BSH) are summaries of data presenting the monthly changes to water resources in France. They describe the quantitative situation of aquatic environments, including effective rainfall, watercourse flow rates, groundwater levels and the fill status of reservoir dams. In addition, they provide summary information on the prefectural orders issued to limit water use during the low water period. The BSH, organised by an editorial committee made up of various contributors such as data producers and managers, is led by OiEau, in conjunction with the French Office for Biodiversity (OFB) and the Department of Water and Biodiversity of the Ministry of the Ecological Transition and Territorial Cohesion.

Here are some key points from the 2023 BSH:

- In November 2023, rainfall was in excess by an average of 50% over France and the month ranked 5th among the wettest Novembers over the period 1959-2023. The refilling period began with sharp increases in levels: 48% of aquifers were above normal levels.
- In July 2023, despite wet soils in many sectors in the north of the country, the situation was particularly difficult with dried-out soils, particularly in the south of the Pays de la Loire and around the Mediterranean.

VigiEau

VigiEau is an online platform that allows individuals, farmers, mayors and business owners to find out about the restrictions on water use in force locally in France. It aims to facilitate sustainable management and conserve water resources. In addition to restrictions, adopting green actions is a good way to preserve this common asset. They are also shared on this platform.

OiEau, through SANDRE (see p. 32), contributed to the development and dissemination of the reference framework for drought alert zones used by this platform.

MANAGEMENT AND DEVELOPMENT OF THE NETWORK OF WATER STAKEHOLDERS

Developing networks of new or historic stakeholders requires **continuous and long-term coordination.** Through the networks it coordinates, OiEau supports every link in the large chain of stakeholders involved in water resource management in order to provide **better connection** between them. On various geographical scales, water managers in the field, government administrations, scientists, international cooperation organisations and financial institutions are able to find each other more easily thanks to the spaces for exchange offered by OiEau.

With the overall objective of **adapting to climate change,** these spaces make it possible, for example, to promote integrated water resource management internationally (International Network of Basin Organisms, Euro-Mediterranean Information System on know-how in the Water Sector, etc.) or in France (Gest'eau community (p. 35), network of documentary skills (p. 39), etc.), the application of the **Water Framework Directive** in the European Union (e.g. with the EURO-INBO (p. 36), or innovations for improving governance policies or water information systems (Water4All (p. 38) and InnWater projects, etc.).

> ***"Developing networks of stakeholders is an effective way to improve water resource management around the world thanks to the involvement of members who come to share their skills, experience and the challenges they are facing. "***
>
> **Ms GERMAIN-LUPI,**
> Project Manager - International Cooperation, OiEau

Network coordination is therefore an extension of all the other areas of OiEau's technical expertise and allows members and partners in these sectors to be represented in large communities around the world. They can **share their feedback, their expertise, and the challenges they are facing and the solutions they are testing to overcome them.** Monitoring and contributions to manuals on water resource management also constitute coordination tools. Finally, successful network development is above all measured by the presence of **committed stakeholders** who keep this coordination going through their interactions with each other and their **involvement.**

Networks are living spaces thanks to their members' participation in major international events, their talks during freely accessible webinars, and their contributions to smaller committee workshops. The importance of this coordination work truly becomes clear when regular interpersonal exchanges are established and trusting relationships develop between coordinators and members.

Gest'eau: the resource centre for SAGE facilitators

The Gest'eau resource centre on Sub-basin management plan (SAGE) is the foundation for France's national coordination of the network of SAGE stakeholders. In addition to centralising, banking and disseminating data and knowledge, Gest'eau supports stakeholders, connects them and facilitates the sharing of experiences. It also establishes links between the local scale, that of large river basins and the national level.

The SAGE facilitator's job is very multifaceted: expertise in various water fields, project management, mobilisation of very diverse stakeholders, etc. Developing exchanges between peers is central to managing the network, in order to share tools, discuss successes and challenges, and promote skills enhancement.

Furthermore, it is important to emphasise synergies with other communities of water management stakeholders, such as those working more specifically on catchment, wetlands, watercourses, etc., as well as with the world of land use planning. All these topics are connected, with common challenges, but are still too often addressed in a compartmentalised way. Strengthening interactions seems essential.

For more information:
www.gesteau.fr

GEST'EAU

ANEB is working for the institutionalisation of basin management in France, adapted to the specific characteristics of each territory

ANEB (Association Nationale des Elus des Bassins) has moved to 22 rue de Madrid in Paris, in the premises of the Paris headquarters of OiEau. More than a physical move, the ambition is to facilitate the deployment of cooperation around our strategic objectives, which aim to strengthen balanced, sustainable and integrated water management at the heart of sustainable regional development. Backed by its members, and in particular the EPTBs, EPAGEs and basin syndicates, ANEB leads partnership projects to support real water democracy and the management of water as a common good, at basin level, across all territories. OiEau is one of these partners, and this collaboration will be reflected in concrete terms in the coming months through new action programmes.

A formal partnership with FENARIVE

FENARIVE (Fédération nationale des associations de riverains et utilisateurs industriels de l'eau) is one of the public authorities' key contacts when it comes to the industrial use of water, and it sees the Reuse of Treated Wastewater (REUSE) in industrial applications as one of the solutions to be explored in order to limit the amount of water taken from the natural environment. In November 2023, FENARIVE dedicated its annual conference to this theme, one of the levers for water saving in industry.

The aim was to present the new French regulatory framework, to take stock of the current situation and outlook, to benchmark REUSE internationally (Asia, Middle East, Europe), and to hear feedback from industrialists, to discuss the obstacles and levers for progress in France. Julien LOUCHARD, OiEau's expert, presented examples of industrial REUSE and the issue of the «true price of water».

The fruitful exchanges between OiEau and FENARIVE in 2023 made it possible, at the GA on May 2024, to formalise a cross-membership between the two organisations in order to strengthen exchanges and develop a partnership relationship. The common objective is to support the industry in its progress towards water efficiency via various levers: regulations, best available techniques, feedback, etc. The projects led by OiEau (Life ZEUS, Explore 2, etc.) can provide input for the FENARIVE network. FENARIVE is present in the governance structures (National Water Committee, Basin Committees, Boards of Directors of the Water Agencies) and can share the vision of industrialists in the necessary transition to water.


©FENARIVE

We are very pleased with this formalisation. It's a step towards more collaboration, so that industrialists can take better advantage of the cross-fertilisation of skills between OiEau and FENARIVE (training, water data management, international feedback via the International Network of Basin Organisations (INBO), in which FENARIVE participates, etc.).

Christian Lécussan,
President of FENARIVE

EURO-INBO 2023: 20th anniversary of the International Conferences for the Implementation of European Water Directives

150 ATTENDEES

24 COUNTRIES REPRESENTED

2 INTERACTIVE WORKSHOPS

5 THEMED SESSIONS

62 SPEAKERS AND RAPPORTEURS

The 21st Euro-INBO International Conference took place from 16 to 19 October 2023 at the City of Arts and Sciences in Valencia, Spain. As the secretariat of the International Network of Basin Organisms (INBO), OiEau organised the event, in close collaboration with its partners and hosts: the Júcar River Hydrographic Confederation, the Spanish Ministry for the Ecological Transition and the Demographic Challenge, the French Biodiversity Agency (OFB), and the Mediterranean Network of Basin Organisms (MENBO).

A programme around a large number of topics allowed for rewarding exchanges of experience and knowledge, which were praised by the participants.

Session 1: Water and agriculture Diffuse pollution management

Diffuse pollution from agriculture is a major challenge for water quality. It is essential to improve farming practices by training farmer and raising awareness, providing advisory and guidance services, while ensuring quality control and data collection.

Session 2: New challenges for the implementation of the Water Framework Directive in relation to other European water directives

Effective implementation of the Water Framework Directive requires an integrated and multi-faceted approach. It is important to address challenges such as sectoral pressures on the ecological status of water, emerging pollutants, climate change and cross-border resources. This requires tailored solutions, improved monitoring and comprehensive strategies that incorporate a horizontal approach to management policies and practices, as well as local adaptation to protect and effectively manage water resources in the European Union's river basins.

Session 3: Adapting to climate change Integrating reuse to combat droughts and water scarcity

Adapting to climate change is crucial in addressing the challenges of water scarcity. A holistic and proactive approach with a focus on wastewater reuse is essential. It is important to ensure that this practice is acceptable to users by introducing additional controls to prevent pollution or contamination, while also controlling costs.

Session 4: The role of the various stakeholders in the implementation of the Water Framework Directive

For an effective implementation of the Water Framework Directive, it is necessary to improve public participation, establish clear regulations and promote multi-stakeholder collaboration in water management across intra-state borders.

Session 5: Cross-border and international cooperation

The cross-border cooperation tools developed within the European Union (governance mechanisms, exchange of experiences and data sharing) make it possible to better manage river basins and are a source of inspiration for other world regions.

This programme concluded with the handover of France's presidency of the Euro-INBO, represented by Mr Jean Launay, President of the National Water Council, to Spain, represented by Mr Teodoro Estrela, Director General of Water at the Ministry for the Ecological Transition.

A distinctive feature of this edition is that, to mark the 20th anniversary of MENBO and its statutory sessions of the General Assembly, stakeholders in the management of the basins on both sides of the Mediterranean were also invited to take part in the discussions.

For more information:

Euro-INBO 2023 report

https://res.cloudinary.com/oieau/image/upload/v1718977020/Dossier_Euro-RIOB_EN_DIGITAL_VF2_wu2rcy.pdf

Identifying innovative water governance practices with Horizon Europe projects

The conference included a workshop on innovations in water governance organised by a group of three Horizon Europe projects (GOVAQUA, InnWater and RETOUCH NEXUS). The workshop enabled participants to discover the innovative water governance practices identified so far by the three projects and to share their feedback.

Europe is teeming with best practices in water governance and one of the objectives of the workshop was to gather examples. Innovation in water governance can be seen as an evolving practice that adopts new solutions that are not yet widely applied but could pave the way for more adaptive and resilient water management.

Innovations in water governance may, for example, relate to stakeholder participation, digital tools, economic instruments or the approach of the Water-Energy-Food-Ecosystem Nexus, which highlights the interdependence of water, energy, food security and ecosystems. During the workshop, real-life case studies from the three research projects made a tangible connection with the issues addressed, while an interactive working session encouraged lively debate and exchanges of ideas between participants.

For more information:

https://res.cloudinary.com/oieau/image/upload/v1718977020/Dossier_Euro-RIOB_EN_DIGITAL_VF2_wu2rcy.pdf

INBO: water resource management by and for basins!

In 2023, the active participation of the International Network of Basin Organisms (INBO) in the United Nations Water Conference, held in New York in March 2023, was an important milestone in recognising the critical importance of water management at basin level. Immediately afterwards, INBO co-organised the 3rd International Conference on Water and Climate in Fez in July 2023 and played a crucial role in preparing for the 10th World Water Forum, which took place in Bali from 18 to 25 May 2024. The network presented its new initiatives and publications, including a special issue of Water International magazine on basin management and a Manual on plastic waste shipments.

A new impetus for the network

To mark its 30th anniversary, which will be celebrated from 7 to 10 October 2024 in Bordeaux at a World General Assembly, INBO refreshed its graphic identity, with a new logo and a new website. Its action plan, which sets out the organisation's strategic priorities for the coming years, is also being renewed.

Fighting macro-waste: a committed network

Plastic pollution is a major problem linked to a host of issues on a global scale. This pollution mainly comes from the land. Once produced, waste can be released into the environment accidentally or intentionally.

Urban networks have been identified as waste transfer routes to aquatic environments (watercourses or the marine environment). In France, waste in wastewater or rainwater sanitation systems is being targeted by several action plans led by the French Ministry in charge of the Ecological Transition and Territorial Cohesion, namely the Biodiversity Plan (2018) and the associated “Zero Plastic Reaching the Sea” action plan (2020–2025).

On a local level, the interest of local authorities and network operators in the subject often continues to come up against operational constraints and challenges on the strategy, the methodologies applied, the roles of each individual and the return on investment.

In this context, OiEau and Cedre, an expert in accidental water pollution, funded by the Loire-Bretagne water agency, are joining forces and launching a support and guidance network for action aimed at local authorities in order to promote innovation, exchanges on feedback and best practices.

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Water4All: research and innovation in support of water management policies in Europe

©OiEau

The Water4All partnership, co-funded by the European Union (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 90 partners in the research, development and innovation (RDI) chain from 33 countries from the EU and beyond, around five main pillars.

One of the pillars of this project aims to develop solutions for taking better account of innovative approaches and tools in policy-making processes, with the aim in particular of strengthening the science-policy-governance interface.

In this context, the policy support working group, co-led by OiEau as Permanent Technical Secretariat of the International Network of Basin Organisms (INBO), strives to identify the research and innovation needs that can support the implementation of the main European Water Framework Directives (WFDs, Urban Wastewater Treatment Directive and Drinking Water Directive), notably through exchanges with policy-makers, scientists and economic stakeholders in the water sector. A report on this will be published by June 2024.

For more information:

www.water4all-partnership.eu

Web conference: watercourse case law

©OiEau

The French legislative and regulatory system includes a significant number of provisions relating to watercourses, derived from the various water laws as well as other texts, sometimes specified by decisions of varying natures (decree, order, etc.). It can be difficult to master these elements, due in particular to the abundance of texts and the specific vocabulary and knowledge required.

Added to this is the constant potential for change in the rule of law under the effect of judicial decisions.

To promote the adoption of legislative and regulatory tools by stakeholders in the management and restoration of watercourses in local areas, OiEau organised a web conference on watercourse case law in October 2023, with financial support from the French Biodiversity Agency (OFB). This event brought together an audience of 150 people, made up largely of agents from watercourse management authorities, state departments and public institutions. It provided theoretical background on case law, illustrated by several concrete examples relating to watercourses.

For more information:

Watch the replay :
www.youtube.com/watch?v=CUwsZNX2RLs

Read the report:
https://bit.ly/4dY1BAs

When documentalists explore the potential of artificial intelligence!

In November 2023, members of the French documentary skills network took part in a two-day seminar at the Training Centre of the French Office for Biodiversity (OFB) in Le Bouchet (45). This seminar, which is held regularly by OiEau, is a unique opportunity to help members of the network – as partners contributing to the "Water and Biodiversity" documentary partnership portal – to develop their skills.

As well as a chance to meet information-documentation professionals from different public organisations, these exchanges focused on sharing best practices, particularly in the technical field of monitoring, and exploring tools linked to artificial intelligence, evaluating their potential to build knowledge based on document management techniques.

Through various practical tasks, such as synthesising documents, extracting concepts on a technical theme or exploring the latest developments on a subject, participants received support tailored to their needs and insight into professional advances applicable in the context of their work. These opportunities will also help expand the information and knowledge soon available through a knowledge base dedicated to water and biodiversity issues, which is due to be published online by OiEau shortly.

For more information:
"Water and Biodiversity" portal
https://www.documentation.eauetbiodiversite.fr/

©OiEau

SOME CROSS-SECTORAL PROJECTS

Cross-sectoral actions among a wide variety of stakeholders have become key to sustainable water resource management, particularly on hydrographic or local scales with multiple uses. To ensure the success of this cross-sectoral approach, several areas must be addressed in a **concerted and complementary manner.**

For the past few years, OiEau has been involved in larger and more complex projects, thanks to its various areas of expertise in offering a response tailored to the combined needs of training, technical and institutional support and data and information management.

By establishing links between different stakeholders and themes, OiEau contributes to integrating the challenges of climate change into water resource management, while offering appropriate support at all levels of governance and operational implementation.

Our cross-sectoral, **often multi-year and flexible actions** demonstrate our continued commitment to meeting current and future challenges alongside our partners and customers. In 2023, OiEau applied this approach in projects that are being carried out at all scales, in France and around the world.

“Through cross-sectoral actions, OiEau offers appropriate support at all levels of governance and operational implementation.”

M. LAROYE,
Deputy Director-General, OiEau

The CARIBSAN project (p. 43), dedicated to the development of constructed wetlands in the Caribbean, has successfully completed its initial phase. This promising initiative has made it possible to implement wastewater treatment solutions inspired by **Nature Based Solutions** (NbS), through technical support and training.

At the same time, the **Bio-Plateaux** project (p. 43) draws on OiEau’s expertise in **Integrated Water Resource Management** (IWRM) to facilitate and coordinate activities around the transboundary river basins of Maroni and Oyapock, for the benefit of partners in three countries, Brazil, Suriname and France (Guyana).

The Life Eau&Climat (p. 42) and Explore2 (p. 41) projects also illustrate how a cross-sectoral approach to different fields guarantees better **“predictive” planning** of water resource management.

These examples demonstrate the synergy of projects led by OiEau, which combine research, training, innovation and cooperation, for a concrete impact on the sustainable water resource management.

Explore2 project: updating knowledge on the impact of climate change on hydrology

©Météo France

The Explore2 project, initiated in July 2021 by the National Research Institute for Agriculture, Food and Environment (INRAE) and OiEau, represents a significant step forward from the Explore 2070 study conducted between 2010 and 2012. Its central objective is to update our knowledge of the impact of climate change on hydrology in France. Co-financed by the Ministry of the Ecological Transition and Territorial Cohesion (MTE) and the French Office for Biodiversity (OFB), it relies on the publications of experts on the Intergovernmental Panel on Climate Change (IPCC-CMIP5) to produce updated hydroclimatic projections.

In 2023, Explore2 successfully progressed in its operational phase. Scientists produced hydroclimatic projections, the results of which will be published after an in-depth analysis in spring 2024. The reports and documents from this phase are available on the project's dedicated website.

The climate and hydrological data produced as part of the project will be hosted on the DRIAS-Eau portal in spring 2024. This portal, developed in 2023 as part of the LIFE Water & Climate project, coordinated by OiEau, is the platform for sharing the results and data produced by the Explore2 scientific community.

OiEau coordinates the "Stakeholder support" component so that the data can be received and used by water managers, thereby enabling them to adapt their water management strategies according to new projections. In 2023, two user committees were organised.

This successful collaboration between scientists and users allowed them to discuss the importance of systematically presenting the scope of possible effects on hydrology and uncertainties, highlighting the importance of not being limited to a single scenario.

Beyond the user committees, a MOOC-Explore2 will be carried out to help with understanding the results and information produced. A user committee was asked to identify their needs and jointly draw up the outlines of the MOOC-Explore2 being produced by OiEau. More than fifteen educational videos produced by OiEau in 2024, with members of the scientific community, will be made available online in spring 2024 for an unlimited time.

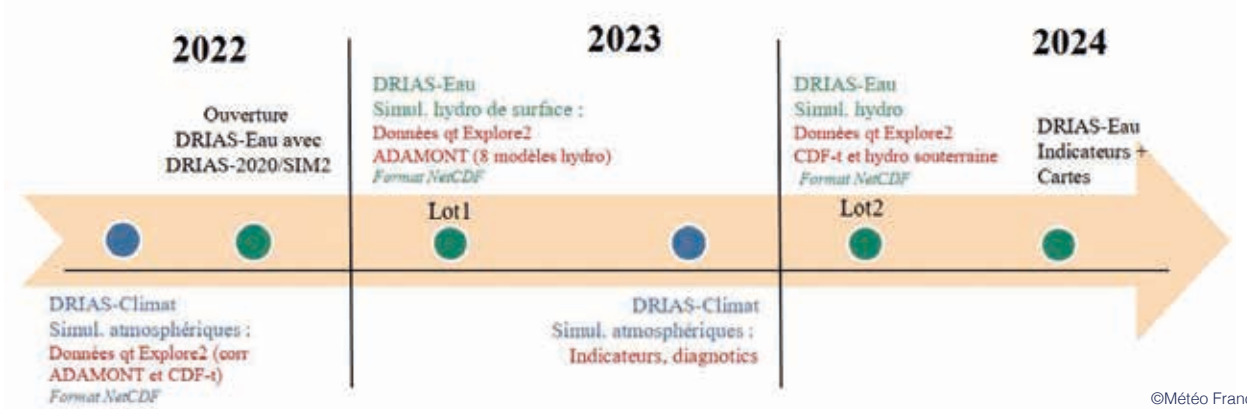
Finally, in 2023, there was a particular emphasis on overseas support, although hydroclimatic projections by 2100 cannot be produced due to specific scientific barriers. OiEau has drawn up a detailed report on current knowledge and the obstacles to be overcome for these regions, in order to establish a roadmap for carrying out similar exercises in the future.

Through its actions and results, Explore2 stands out as a key initiative in updating knowledge of the impact of climate change on hydrology, and in supporting local stakeholders towards more resilient and suitable water management strategies.

For more information:

Dedicated project website:
https://professionnels.ofb.fr/fr/node/1244

DRIAS-Eau portal:
www.drias-eau.fr



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LIFE Water & Climate: support for local decision-making

Workshops with Odyssy participants - June 2023.© OiEau

One of the key focuses of the LIFE Water & Climate project (Supporting long-term local decision-making for climate-adapted Water Management), which is beginning its final year, is to improve access to hydro-climatic data. As a result, Météo-France has launched the DRIAS-Eau portal, which contains a wide variety of information, rates of water flow, evapotranspiration, soil moisture, etc. The data and maps can be downloaded free of charge. The results of the Explore2 project, which aims to update knowledge on the impact of climate change on hydrology, are regularly added to this portal.

In French regions, the project partners proposed a large number of ways in which to mobilise local stakeholders, transfer and access knowledge. These include the installation of rainwater collection systems by the Célé - Lot médian joint association, the hosting of an Escape Game on climate change by EPAGE Loire-Lignon, the remote detection mapping of irrigated areas in the Durance basin and many others, available on gesteau.fr. OiEau has transcribed some of these local initiatives in the form of feedback sheets, seven of which are already available.

2023 marked the start of the transfer of knowledge and skills outside the consortium. To this end, Hydreos/Aquanova and the water agencies organised information sessions for each major metropolitan river basin, aimed at stakeholders in local water management. The objective was to present the main results and tools resulting from the LIFE Water & Climate project. It was also an opportunity for peer-to-peer discussions on water management and climate change issues.

To conclude this third year of the project, the partners met in Angoulême from 20 to 22 June for the fourth general meeting, with agenda highlights including a Sources de la Touvre site visit (16), a progress report on the project's initiatives and a meeting with the participants in the Odyssy adventure; an awareness-raising programme on the challenges of water resources.

For more information:

Feedback sheets:
https://bit.ly/3wRMgkw

Results page
www.gesteau.fr/life-eau-climat/resultats

General Assembly - Angoulême - June 2023. © OiEau

BIO-PLATEAUX: strengthening governance on the transboundary rivers of the Guiana Shield

© OiEau

2023 once again demonstrated that the challenges of managing the transboundary rivers of the Guiana Shield Plateau require stronger governance.

The challenges of climate change (a prolonged period having isolated entire municipalities in the second half of the year), contamination (with the consequences of illegal gold panning, a transnational phenomenon) or access to essential services (drinking water, sanitation, waste) call for joint work between the neighbouring countries who share these rivers.

Supported by partners from Guiana (Guiana Water Office), Brazil (Amapá State Secretariat for International Relations and Foreign Trade) and Suriname (Ministry of Public Works), and coordinated by OiEau , the BIO-PLATEAUX initiative is continuing its efforts to tackle these challenges gradually, working to support governance, regional coordination, awareness-raising, improving knowledge of water resources and planning for the Maroni and Oyapock river basins.

This long-term project is supported by the European Union, the Guiana Local Authority, the State of Amapá, the French Biodiversity Agency, the Guiana Water Office, the Directorate-General for Territories and the Sea and the National Centre for Space Studies.

For more information:

Project website:
www.bio-plateaux.org

Project video:
www.youtube.com/watch?v=xI2SltYMxpk

CARIBSAN: a regional cooperation project with a bright future

CARIBSAN is a regional initiative shared between Cuba, Dominica, Guadeloupe, Saint Lucia and Martinique. Launched in 2021, it aims to promote the use of constructed wetlands (CW) to treat wastewater in the Caribbean. With the Martinique Water Office as its leader and OiEau its operator, CARIBSAN is co-financed by the European Union through the INTERREG Caribbean programme and by the French Development Agency (AFD).

One of the highlights of 2023 was the regional conference in June, which brought together nearly 200 water stakeholders from all over the Caribbean in Fort-de-France. It was an opportunity to discuss the project's progress and Nature-based Solutions (NbS) in to address common sanitation challenges in the presence of high-level Caribbean national and local authorities.

Awareness-raising and technical dissemination tools were produced as a tool for virtually visiting a CW plant. Agents from the Cuban National Institute of Hydraulic Resources (INRH), the water and sanitation companies of Saint Lucia (WASCO) and Dominica (DOWASCO) were trained in CW technology.

© OiEau

Each territory was equipped with IT and laboratory equipment to facilitate the operation of future pilot sites.

CARIBSAN completed at the end of 2023 with excellent results from this cooperation, shared in a closing webinar. Partner institutions will now be able to start a second phase with the ambition of building constructed wetland treatment plants in their local area, based on the studies prepared during the first phase.

For more information:

www.caribsan.eu

FINANCIAL REPORT

The 2023 financial year confirms the Association's strong development phase since the end of the health crisis. For the first time in its history, OiEau has achieved a turnover of almost 16.8 million euros, while maintaining its operating margin.

This reflects the growing effectiveness and relevance of its actions.

Thanks to these good consolidated results, which are a sign of the trust and support it has won from its partners and customers, the Association can now focus optimistically on strengthening its teams and modernising its facilities, pursuing innovation on its educational platforms, improving the energy efficiency of its buildings and optimising its workspaces.

16.8M€

IN REVENUES FROM ACTIVITIES IN 2023

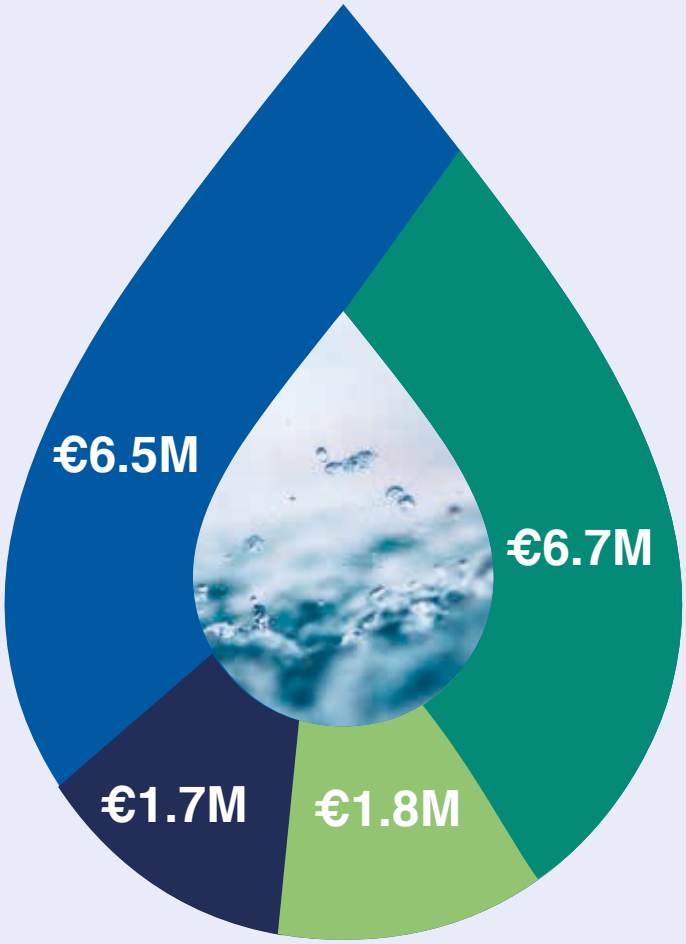
154

EMPLOYEES (PERMANENT AND FIXED-TERM)

Statutory missions

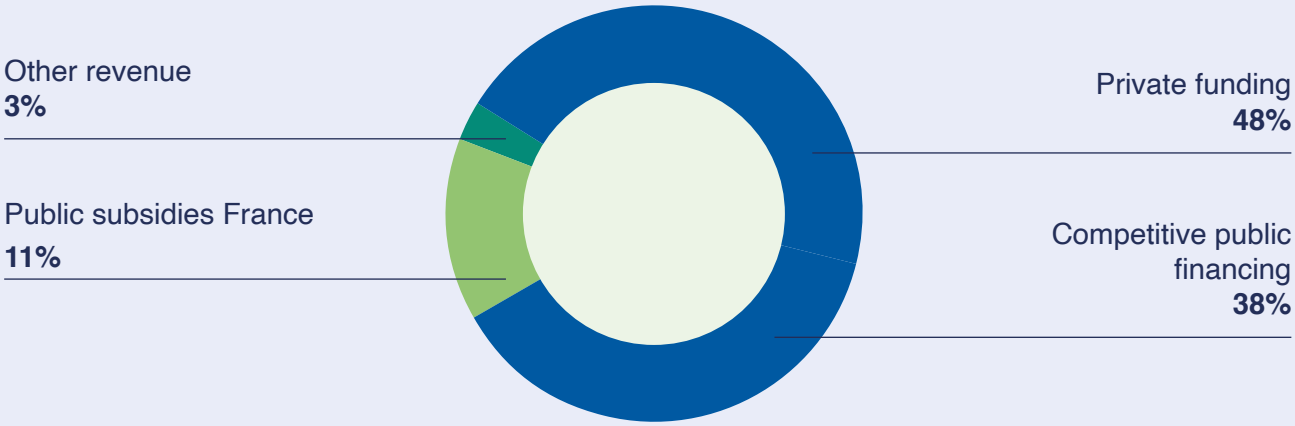
OiEau's revenue can be broken down according to its main statutory missions:

- *Research - Support - Consultancy*
- *Data - Tools & Information Systems*
- *Facilitating stakeholder networks*
- *Developing kills through training*

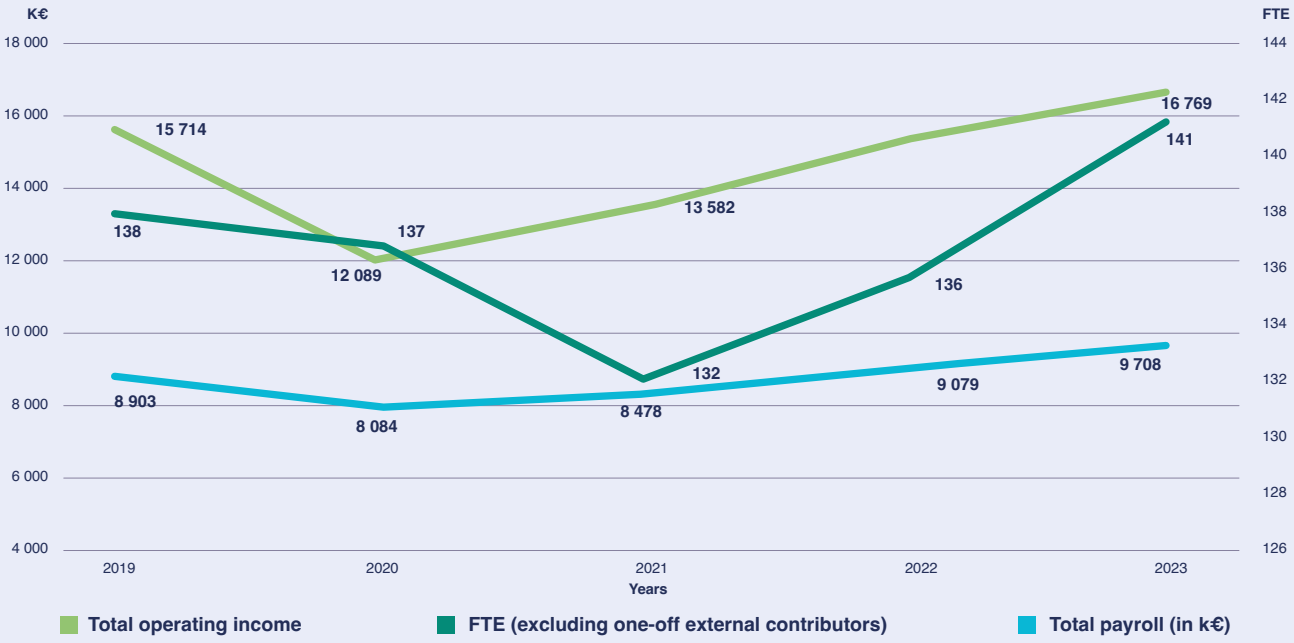


The main revenue families

OiEau's revenue can also be broken down into the major product accounting families. This makes it possible to observe the share of French public subsidies, but also the breakdown of turnover between private funding and competitive public funding (calls for tenders, calls for expressions of interest, etc.):



Changes in operating income, payroll and FTEs



Future challenges

2023 will therefore have been a year of success and growth for OiEau.

In order to maintain this favourable momentum, and to better fulfil its statutory missions, the Association must adopt an ambitious action plan for 2024 and 2025.

In terms of Human Resources, in order to strengthen its production capacities to meet the new requirements of the sector, OiEau must continue to attract talent, ensure the proper development of internal skills and optimise its partnerships.

In financial terms, OiEau will necessarily support innovation through strategic investments in its educational platforms, its pilot demonstrations, and in new methods of learning and transmitting knowledge.

PERSPECTIVES

© OiEau

Unconventional water: a hot topic at OiEau

Climate change is having significant impacts on water. Droughts and the scarcity of resources now require us be economical in our domestic, industrial, agricultural and energy water use. The French Government emphasised this in its “Action Plan for Resilient and Concerted Water Management” in March 2023, with the aim of guaranteeing access to water for all and preserving ecosystems. Featuring 53 measures, it aims to meet three major challenges: economical use, quality and availability of resources.

Optimising the availability of fresh water means recovering so-called unconventional water (ENC): reusing treated wastewater (REUT), using rainwater, pluvial water, greywater, etc. The Plan therefore aimed to make the recovery of ENC widespread, with the development of 1,000 reuse projects throughout the country by 2027, in order to reduce freshwater withdrawals and help replenish the groundwater table with rainwater.

Step 1 of the approach

This consists of removing regulatory barriers to the recovery of ENC for certain economic uses (agriculture, agrifood industry in particular) or domestic uses, while protecting the health of populations and ecosystems. Law have recently been issued on the circular and responsible use of water resources:

- Decree n° 2023–835 (REUT) of 29 August 2023 and the orders for irrigation of green spaces and crops of December 2023;
- Decree n° 2024–33 for the agrifood sector of January 2024, which defines the conditions required for the production and use of reused water for preparing, processing and preserving all food and goods intended for human consumption.

Focus on rainwater and pluvial water

Among unconventional water sources, pluvial water can be easily used. Runoff water can be sent to so-called green facilities such as rain gardens, water meadows, etc., to help promote biodiversity and thermal comfort during episodes of high heat. The subsequent evapotranspiration would make this "green water". Water from roofs (rainwater) can also be stored in tanks and reused. OiEau's Limoges and La Souterraine sites have facilities for recovering and using rainwater. They supply the toilets and provide valuable feedback on the actual operation of such an installation during training sessions.

Urban rainwater management (GEPU in French) now appears at the crossroads of different disciplines. This is no longer a purely hydraulic issue, but also one of urban planning and even landscaping. It must be combined with reducing the impacts of climate change, in particular the fight against heat accumulation in summer, and reducing carbon emissions, with the development of soft mobility, with traditional roads becoming shared with vegetation, cycle paths and public transport, etc.

We need a paradigm shift.

Developments are more complex to implement than the "tout-tuyau" system, with designs, choices of infiltrating materials, depending on the use of the road and choices of vegetation, for example. They must be studied on a case-by-case basis. Habits must change, and for this, we need to acculturate engineering offices and developers.

Mr. Gachelin,
Rainwater Management Expert, OiEau

REUT in industry

In the industrial sector, REUT is part of a holistic approach, where water use is synonymous with sustainability, efficiency and environmental protection.

Since its creation, OiEau has supported this sector in setting up innovative projects for the conservation of water resources. This is the case for the ZEUS pilot project, for "Zero Liquid Discharge Water Reuse", financed by the European Union's Life programme. It is a collaboration between OiEau, the National Institute of Applied Sciences (INSA) Toulouse, Monin (syrup manufacturer) and Chemdoc Water Technologies. This project, the only one of its kind in Europe, is based on a dual objective: to reduce water consumption at the Monin plant in Bourges, and to enable the reuse of industrial effluents after treatment. The challenge is to demonstrate the technical and economic feasibility of a total water recycling solution to achieve zero liquid discharge, with a view to replicability in sectors other than agrifood.

We are going very far in terms of water reuse rates, as we hope to reuse more than 80% of the effluent, as water of compliant quality for food contact, and also very far in the use of this purified water, including food contact in the facilities that will contain the syrup.

Mr. Lanouguère,
ZEUS Life European Project Manager, Monin

OiEau offers a comprehensive range of training courses on all areas of unconventional water in order to help adapt the skills of water professionals to these new challenges. OiEau is also works extensively on these topics through its technical and institutional support, stakeholder networking and data and information systems management activities.

PERSPECTIVES

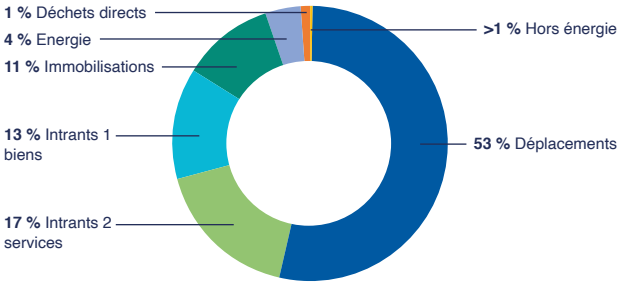
OiEau is committed to the ecological transition...

Following its environmental programme, OiEau has been renewing its ambition since 2010, in line with its certification as an environmental protection association (2022), through two initiatives in particular: a low-carbon transition approach and a regreening project for its Limoges site.

With 8,000 m² of buildings and educational facilities and numerous trips, especially internationally, OiEau employees are aware of their greenhouse gas emissions. Committing to a low-carbon transition means reducing them, being more resilient and contributing to a collective effort. Using a method developed by Ademe (ACT step by step), an action plan allows everyone to commit to a continuous improvement approach.

The first step consisted of carrying out a complete carbon assessment for 2022, in order to determine how the association's emissions are distributed, with the support of CITEPA.

Breakdown of 2022 emissions by category

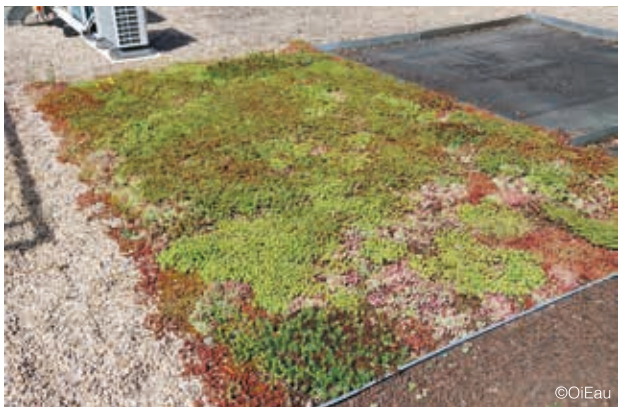


The assessment shows that our activities generated 2,800 tonnes of CO2 equivalent, i.e. 21 tonnes per employee or 1,600 Paris - New York round trips, well above the national average for a French person (9.2 tonnes). Of these emissions, 53% are attributable to the travel of employees and trainees at OiEau and 41% to the purchase of goods and services.

The assessment will be repeated at regular intervals to monitor our progress. In 2024, we will deepen our analysis to identify the issues and challenges, develop a long-term vision, draw up a strategy to achieve it and come up with an associated action plan. Its implementation will begin in 2025.

At the same time, OiEau is regreening the Limoges site in 2024. The site has an extensive footprint, with a large area of buildings and car parks, as well as green areas and trees. In addition to the educational facilities dedicated to integrated rainwater management (IRWM), this regreening initiative should allow us to go further, with total rainwater disconnection, parking spaces with various permeable surfaces, hedges and diversified habitats. By contributing to the preservation of common biodiversity, we also want to illustrate how far we can go when it comes to restoring ecological functions.

This large-scale project represents an innovative approach and we aspire to set an example in terms of IRWM and the conservation of urban biodiversity in France.



... and promotes NBS in European projects

Being resilient to the impacts of climate change

NATALIE is a project funded by the European Union (EU) as part of the Horizon Europe programme for a period of 5 years (2023-2028), with a budget of €15 million. It is coordinated by OiEau and brings together 43 partners from 9 EU countries, including 3 associated countries and the United Kingdom.

NATALIE aims to address the risks posed by climate change and proposes to advance Nature-based Solutions (NBS) in Europe to accelerate our resilience to these risks, based on the study of their impacts. It contributes to the objectives of the EU mission 'Adapting to climate change', which aims to help regions become more resilient by 2030.

NATALIE's objectives are to

- Deploy NBSs in Europe in consultation with local stakeholders through climate change resilience measures that benefit ecosystems;
- Carry out replication studies following the tests carried out on the observation sites;
- Develop tools to assess the impact of these solutions (including socio-economic impacts);
- Carry out various tests to develop appropriate financing tools.

The kick-off meeting was held from 7 to 9 November 2023 at the Haute-Vienne Departmental Council in Limoges. It provided an opportunity to discuss the project's actions and the co-creation of innovative ecosystem-based solutions for adapting to climate change. A presentation of the Vienne River site in France was given in collaboration with the Vienne River Basin Development Association (SABV), with a guided tour of the NBSs implemented on this site, such as the restoration of wetlands and ponds, as well as the riparian forest.

For more information:

www.natalieproject.eu

NATALIE

A learning platform for OPTAIN, on water retention and reuse in small agricultural catchments

OPTAIN

OPTAIN European project (www.optain.eu, 2020-2025), coordinated by UFZ, gathers 22 partners and 14 case studies. The project aims at identifying optimal combinations of Natural Small Water Retention Measures (NSWRM) for better water management in agricultural catchments. OiEau, as leader of the activities of communication and dissemination activities, is developing OPTAIN Learning environment (OPTAIN LE). OPTAIN LE is the project's main dissemination and important co-creation product highlighting all major improvements in the knowledge on NSWRM from a scientific and an actors' perspective.

OPTAIN LE targets agri-advisors, practitioners, regional planners, decision-makers, researchers, and students at the graduate and post-graduate levels. It also reaches out to non-experts. The goal is to teach users about NSWRMs, their multiple benefits, and how NSWRM measures can help with climate change adaptation.

Users will also benefit from technical and scientific process to make informed decisions about NSWRM.

The learning path is combining knowledge from 5 main sections: Learn about, Catalogue, expert and scientific area, NSWRM Policies, Explorative tools and Media centre.

OPTAIN LE will launch at the General Assembly in September 2024 (Klaipėda, Lithuania).

For more information:

https://bit.ly/4bFx495

PERSPECTIVES

Artificial intelligence for learning and decision-making in the water sector

Summary results by AI, clickable and exportable

Climate change represents a major challenge for the management of water resources in France and around the world. Phenomena such as prolonged droughts, flash floods and frequent pollution are disrupting water supplies and the quality of this vital resource.

Against this backdrop, artificial intelligence (AI) is emerging as a powerful tool to help preserve and share water resources in a more efficient and resilient way. They represent an opportunity to better disseminate and use knowledge about water, and encourage proactive rather than reactive management.

To make the right decisions, AI produces different scenarios of change based on modelled hypotheses using data as the raw material. To do this, AI needs processes for collecting, interpreting and evaluating data that are precisely reliable, comparable and assessable. This requires significant investment, because AIs need to acquire a great deal of information through a large number of data-producing 'sensors' in order to understand their environment.

The cognitive branch of AI, based on self-learning, deduction and natural language, is revolutionising the way we learn and invent new solutions. Predictive models can provide accurate forecasts of rainfall and river flows, enabling better resource management. The optimisation of water distribution can be controlled by advanced algorithms, reducing losses and improving the efficiency of water use, particularly during periods of water restrictions. The monitoring of infrastructure, such as dams and canals, can be automated using intelligent sensors, guaranteeing ecological continuity while satisfying the various uses of water.

OiEau is working on a number of projects involving AI, both in terms of structured data (which has been analysed, sorted and classified, based on dedicated ontologies) and unstructured data (stored in its natural formats pending analysis).

For example, in the 'Knowledge Base' web project (p. 39), developed in partnership with the French Office for Biodiversity, an AI is fed with metadata from scientific and technical documents on water (selected beforehand from thousands of freely available titles) to answer questions from players in the sector. Complemented by dashboards drawn from key figures, water stakeholders will soon have a free, powerful tool with which to feed predictive models.

By the basins, for the basins: for better water resource management

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For 30 years, OiEau, the secretary of the International Network of Basin Organisms (INBO) and operator of many projects around the world, has promoted catchment basin management on an individual basis for better water management.

This scale is recognised as the most relevant to effectively address the increasing challenges related to climate change, resource scarcity and the preservation of aquatic biodiversity. The United Nations Water Conference in New York in March 2023 was a key point in confirming the political and technical value of this per-basin approach.

Individual basin management is essential for implementing efficient Integrated Water Resource Management (IWRM), promoting optimal use of resources for humans and nature. It also helps balance the needs of additional or even competing uses, as well as the needs of the environment.

Designing and implementing IWRM action plans at river basin level is effective. These plans optimise infrastructure costs according to the context, promote the sharing of information between water stakeholders and users, and encourage participatory governance for operational and ecosystem-friendly implementation.

10th WWF

OiEau and INBO taking action for basins

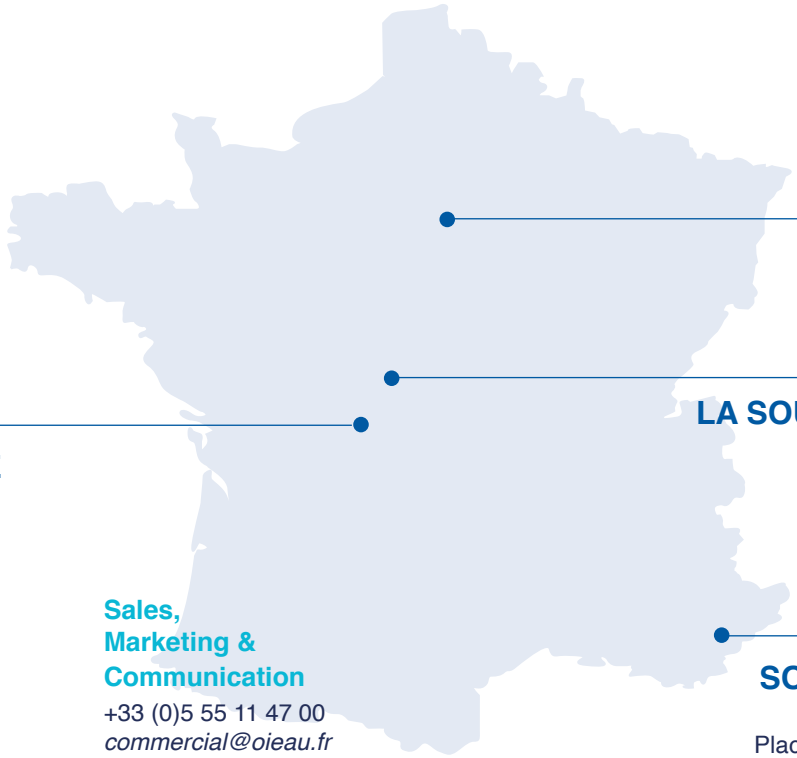
As part of the 10th World Water Forum (WWF), taking place from 18 to 25 May 2024 in Bali (Indonesia), on the theme of "water for shared prosperity", INBO organised the high-level section dedicated to basins. It covered complementary topics such as financing, water information systems and cooperation.

This political gathering aims to engage and mobilise stakeholders to accelerate the achievement of the UN Sustainable Development Goals (SDGs) by and for the basins.

For this occasion, INBO has launched a coordinated programme between several partners aimed at progressively promoting and developing peer-to-peer exchanges and twinning alliances between basin organisations. The first confirmed component of this initiative, a peer-to-peer project supporting the basins, has been developed with the support of the European Commission's Directorate-General for International Partnerships (DG INTPA).

> *The European Union (EU) sees cooperation in the field of water as a vector of peace, security and regional stability. IWRM allows us to strengthen cross-sectoral cooperation with our partners. The European Union has a wealth of experience and tools that it wishes to leverage, with INBO, through a network of technical and institutional exchanges between basin organisms. This initiative is part of a broader approach to in order to implement the Global Gateway.*
>
> **Ms JAGER,**
> Deputy Director-General, European Commission Directorate-General for International Partnerships (DG INTPA)

OiEau
International Office for Water



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