

ANNUAL REPORT 2021



DEVELOPING SKILLS FOR BETTER WATER MANAGEMENT

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WELCOMING MESSAGE

2021 was a year of recovery for OiEau. This is the key message reflected in this annual report. In 2020, our operations were heavily disrupted by the COVID-19 pandemic and its economic consequences. But this episode also demonstrated the strength of our organisation, the ability of our people – and our practices – to adapt, and our collective desire to keep our eyes trained firmly on the future.

In 2021, despite persistent complications arising from the crisis, we regained positive momentum across all areas of our operations. Training registrations returned to pre-pandemic levels, and our offering is now much clearer, with a streamlined catalogue, *à la carte* services that are better adapted to demands and the use of digital tools in every possible configuration. Assistance projects were also close to normal levels almost across the board, with strong demand both in France and around the world. The French Office for Biodiversity (OFB) awarded us a new, four-year contract to act as the technical secretariat of the National Service for Water Data and Reference-dataset Management (SANDRE), and our strategic partnership received a boost with the signature of three-year Multiannual Objective Agreement. Many face-to-face events and conferences returned last year, especially within OiEau-managed networks, providing attendees with a chance to reconnect with one another and rediscover the joys of dialogue and collaboration.

For billions of people around the world, securing safe, convenient access to water remains a constant struggle. In France, the increasingly visible impacts of climate change are raising public awareness – albeit still too slowly – of the value of water for life, and of the fragility of our resources and organisations. As global demand for water and ecological security continues to grow, OiEau will continue focusing on providing responses to the same key challenges: developing skills, sharing data, spreading information, and promoting organisational and governance models.



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 3 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.

STATUT

Non-profit association under French law. Reconnue d'utilité publique, par Décret du 13 septembre 1991, avec reconduction le 16 septembre 2020. La modification des statuts de l'OiEau en 2020 a notamment eu pour objectif d'élargir notre objet statutaire aux domaines des milieux aquatiques, de la biodiversité, de l'environnement ou encore de l'économie circulaire. Auparavant, seul le domaine de l'eau était visé à l'article 1.

WORKFORCE & LOCATIONS

Nearly 140 employees spread over 4 locations in France. 45,000m² of educational units 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 2021, **the Board of Directors** met on 11 May, 23 July and 13 December. An **Ordinary General Assembly** also took place on 22 June.

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

The **Managing director**, Mr TARDIEU, was appointed by the Board of Directors on 1st July 2017.

ORGANIZATION OF THE TEAMS



COUNTRIES WHERE OiEau OPERATES

27 EU countries

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

6 Mediterranean countries

| | | |
|---------|---------|-----------|
| Algeria | Lebanon | Palestine |
| Egypt | Morocco | Tunisia |

6 European countries outside the EU

| | | |
|------------|---------|---------|
| Armenia | Belarus | Moldova |
| Azerbaijan | Georgia | Ukraine |

1 country in North America

Canada

10 countries in Latin America & the Caribbean

Bolivia
Brazil
Chile
Colombia
Cuba
Ecuador
Haiti
Mexico
Peru
Suriname

24 countries in Africa

| | | |
|--------------------------|------------------------------|-------------------|
| Angola | Democratic Republic of Congo | Mauritania |
| Benin | Congo | Niger |
| Burundi | Equatorial Guinea | Nigeria |
| Burkina Faso | Gabon | Republic of Congo |
| Cameroon | Guinea | Rwanda |
| Central African Republic | Kenya | Senegal |
| Chad | Madagascar | Tanzania |
| Côte d'Ivoire | Mali | Togo |
| | | Zambia |

10 countries in Asia & Central Asia

| | |
|----------|------------|
| Cambodia | Malaysia |
| China | Thailand |
| Laos | Vietnam |
| Myanmar | Kazakhstan |
| Nepal | Kyrgyzstan |

&

150
partner organizations

FRANCE Mainland & Overseas

All mainland Regions
Guadeloupe
Guyana
Martinique
Mayotte
New Caledonia
Reunion



OUR VALUES

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

The favored values by order of importance:

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

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

OUR MISSIONS

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

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

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

OiEau carries out its missions:

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

OUR AREAS OF EXPERTISE

IN FRANCE AND WORLDWIDE



Continuing training for water and environmental professionals.



Use of water-related knowledge & information systems.



Technical and institutional support – Cooperation.



Networking of water stakeholders.

IMPLEMENTING OiEau 2021 - 2025 STRATEGY



OiEau 2021 – 2025 strategy, approved at the General Assembly in December 2020, has been developed on a participatory basis. As such, having presided over the drafting of each of the 23 actions, the OiEau teams are now working to implement them.

Operational “action sheets” produced in 2021 now provide a concrete demonstration of the strategy in order to:

- **Facilitate the internal organisation of human, material and financial resources, diversify capacities and enhance skills chains**
- **Promote complex synergies between our areas of expertise** (Training/Support/Water Information Systems) through their coordination, internal communication, inter-site mobility and transversality
- **Cement OiEau’s position** in the long term while identifying potentials for outsourcing
- **Support changes and develop the flexibility and adaptability of OiEau**

These sheets, which are designed to evolve, summarise the following for each of the 23 actions:

- **The context**, challenges and objectives for 2021 – 2025
- **The description of the action**, its operators and stakeholders
- **The internal organisation and resources implemented**, as well as the different stages and schedule
- **Monitoring and indicators**, opportunities and risks
- **Aspects related to marketing and communications**

In additions to “standard” meetings on these actions, an annual review is conducted systematically for each sheet, by groups of 5 to 10 people from different departments of OiEau. As such, 13 sheets have been processed in the first half of 2022, and the rest will be processed by the end of the year. This exercise will be repeated in subsequent years.

These rapid reviews, carried out in a convivial, participatory way, facilitate the operational implementation of the action, the allocation of resources and even the identification of any additional elements required for the sheet, where applicable. These are adaptable documents that will be modified over the course of the 5 years.

“A strategy must be useful. It is useful if it is shared and supported by all the teams, if it is embodied in the day-to-day activities of each individual. This is the meaning of the 23 action sheets that serve as a basis for collective reflection on more precise objectives on the choices to be made and the resources to be made available to achieve them.”

Mr Tardieu - Director General - OiEau

OUR PRIORITY STRATEGIC ORIENTATIONS

1

Support public policies in France

2

Being a vector for changes in the water sector.

3

Strengthening the international dissemination of our skills.

INTERNAL DEVELOPMENT

Develop stronger synergies between our 4 areas of expertise

THEY TRUST US

A large variety of French and international partners and clients request OiEau to design and implement projects combining one or more of our 4 areas of expertise.



French & Foreign Institutional Stakeholders

In France, OiEau is a partner of general interest for ministries and their operators, such as the French Biodiversity Agency, under the supervision of the Ministry of Ecological and Inclusive Transition, and the Ministry of Agriculture and Food.

These missions are linked to the management of environmental data, to their promotion through their dissemination, to the facilitation of stakeholder networks, to the participation in and organization of events (COPs, World Water Forum).

OiEau champions the French model of water management, its values and accomplishments.

At the international level, OiEau regularly supports, in cooperation with French institutional stakeholders, all kinds of water resources management structures, either international (Transboundary River Basin Organizations), national (Ministries in charge of water), regional or local, for better governance based on integrated resource management in river basins.

Donors - Development Agencies

Privileged funders of international actions, educational engineering or technical and governance support, institutional donors and their beneficiaries find in OiEau a broad and multidisciplinary spectrum of expertise, adapted to sectoral skill development programs for water and sanitation services or Integrated Water Resources Management.

The French Development Agency, German or Swiss cooperation, UNICEF, the World Bank, African Development Bank, Inter-American Bank, European programs... allow us working on very diverse projects (creation of sectoral training structures, development of project incubators, design of national technical regulations, Information Systems). Our associative values allow us facilitating consultation with NGOs.



Water Agencies (WAs) - Regional Health Agencies

Loyal partners and sponsors, the WAs and the Regional Health Agencies, use the OiEau's expertise on attractive and topical issues (training on water health security management plans, development of training platforms on nature-based solutions). The WAs also support us in organizing and monitoring international cooperation activities on all continents.



Visit to our Training Centre and our teaching platforms in Limoges and La Souterraine - © OiEau

Industrial leaders

Chemical, agro-food industries, major energy stakeholders initiate strong environmental, energy and ecological transitions. Technical expertise, technological and regulatory watch, specialized job skills training, support for innovation through the establishment of OiEau-developed, built and operated pilot and test units for new techniques, are among our usual activities with these industries.



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Private and public operators - equipment suppliers & distributors

They are the historical customers of vocational training in the water, sanitation and waste sectors. The quality of short continuing training courses, the evolution towards multimodal (blended-learning) and digital training, the evolution of the themes covered allowed, over the years, quick returns on investment in continuing and professional training. Long-term partnership agreements are thus signed with these essential stakeholders.

Scientific partners

French and european public research institutes, universities, Resource and Transfer Centers are partners in innovation projects carried out by the European Union. We find our place there as coordinator or technical partner and in dissemination of innovation. The creation of a "living-Lab" on our technical sites also allows, with renowned scientific partners, to study the functioning and the efficiency of new processes.

Stakeholders in higher education and research

Our skills in vocational training, competent use of technical educational tools and pedagogical engineering capacity are recognized and sought for by those involved in basic-qualifying or work-linked training. Pooling effective means of acquiring technical skills has become a challenge in responding to the Vocational Training Reform in France. Among the fields of activity of the OiEau Training Center (IWTC): collaborative agreements and jointly developed work-linked qualifications.



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KEY HIGHLIGHTS OF 2021

21
-
01



JANUARY

EPNAC information day

100% online
See p. 17

26
-
02



FEBRUARY

Launch of the Bio-Plateaux digital platform

Cayenne - French Guiana
See p. 39



AUGUST

Framework agreement signed with Nestlé Group

France
See p. 42

08
-
07



Webinar: NBS for municipal-scale risk management

100% online
See p. 37

03
-
09



SEPTEMBER

IUCN World Conservation Congress

Marseille - France

OCTOBER



La certification qualité a été délivrée au titre de la catégorie d'actions suivantes:
ACTIONS DE FORMATION

OiEau Training Centre obtains Qualiopi certification

France
See p. 20

17
-
03



MARCH

Study on diffuse pollution and water development and management schemes (SAGE) published

France

26
-
05



MAY

European River Symposium

100% online

06
-
07



JULY

Euwi+ East steering committee meeting

100% online

04
-
06



JUNE

Stormwater & Adaptation webinars launched

France
See p. 41

08
-
12



DECEMBER

19th International Conference of Europe-INBO

Valletta - Malta



Accreditation obtained for elected representatives training

France

OiEau IN THE MEDIA IN 2021

RFI
L'Office International de l'Eau - January 2021

LE POPULAIRE
En Haute-Vienne, la gestion de l'eau est l'affaire de tous mais chacun à sa place
January 2021

LE MONITEUR
Un choc de transparence pour l'assainissement rural
January 2021

LE FASO
GIRE: Les partenariats inter agences de l'Eau France-Burkina lancent les nouvelles phases de leur coopération
February 2021

L'EXPRESS DU FASO
Réaménagement de la vallée du Kou: Koussoubé a remis tous les rapports au ministre de l'agriculture - February 2021

BLADA
La Guyane, le Suriname et le Brésil lancent la plateforme Bioplateaux - February 2021

L'ÉVÉNEMENT
Des agences de l'eau du Burkina et de la France relancent leur coopération
February 2021

OUTREMER 360°
Eau à Mayotte: Le prix de l'eau à Mayotte est plus élevé que nulle part ailleurs en France - February 2021

TOUT VA BIEN
L'eau face au défi des dérèglements climatiques
February 2021

EIN
Réutilisation des effluents industriels: ce n'est pas la technologie qui bloque...
March 2021

NORMANDIE
Une facture d'eau en hausse, de grands écarts d'une ville à l'autre
March 2021

ADMINISTRATION
L'Office International de l'Eau - March 2021

SUD OUEST
Le World Impact Summit, sommet des solutions pour la planète à Bordeaux les 2 et 3 décembre
March 2021

OCCITANIE TRIBUNE
L'OiEau lance des animations pour mieux gérer les eaux de pluie - March 2021

DIMO SOFTWARE
OiEau digitalise ses processus RH et fluidifie ses échanges internes - Mars 2021



AGENCE DE L'EAU RMC
Verdier les villes et limiter le "tout tuyau" - March 2021



L'UNION
La facture d'eau des Français a augmenté en moyenne de 10,7 % en 10 ans, selon 60 Millions de consommateurs
March 2021



LES ZONES HUMIDES
Les zones humides pour une meilleure gestion de l'eau : défis et opportunités pour les entreprises - Mars 2021



SOPHIA MAG
Lutte contre l'érosion du littoral sénégalais : le pari de Dakar - March 2021



LA MONTAGNE
Les étudiants se forment avec l'Office international de l'eau - April 2021



CONSTRUCTION CAYOLA
Frans Bonhomme et l'OiEau satisfaits de leur partenariat
April 2021



LE POPULAIRE
Transition hydrique: Limoges Métropole mise sur l'eau, une compétence qui coule de source - April 2021



AME
Webinaire AVITEM du 8 avril: Innovation eau - April 2021



EIN
Réutilisation des effluents industriels: ce n'est pas la technologie qui bloque...
April 2021



L'EST RÉPUBLICAIN
Un futur parc écologique aux portes d'Héricourt - April 2021



OUTREMERS 360°
Journée mondiale de la Diversité biologique: Les soutiens de Suez Outre-mer et ses filiales locales en faveur de la protection de la Biodiversité - April 2021



LE POPULAIRE
A La Souterraine, l'OiEau veut économiser la ressource pour faire face au changement climatique - April 2021



ACTU ENVIRONNEMENT
Relance des chantiers de l'eau: la filière s'organise
April 2021



ATSEE TSM
PTGE: quelle place dans la gestion des ressources en eau ? - May 2021

OiEau IN THE MEDIA IN 2021



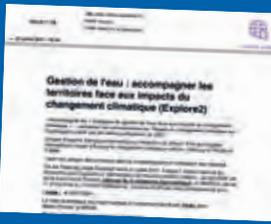
AFD
Les mesures naturelles de rétention d'eau - May 2021



BURKINA 24
Burkina Faso: L'ONEA scelle un accord de coopération avec l'OiEau - June 2021



LE POPULAIRE
Comment l'OiEau, implanté à Limoges et à La Souterraine, irrigue l'économie régionale
 June 2021



INRAE
Gestion de l'eau: accompagner les territoires face aux impacts du changement climatique (Explore2)
 July 2021



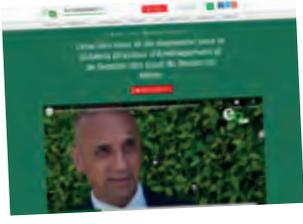
JAMAG
« Les sécheresses des sols ont augmenté depuis 1960 en France »
 July 2021



CONSTRUCTION CAYOLA
Hydrologie et changement climatique: lancement du projet Eplora 2
 July 2021



LE GRAL
L'OiEau de La Souterraine (23) - Chronique du jeudi 1^{er} juillet 2021 - July 2021



ECO CONSCIENCE TV
L'état des lieux et du diagnostic pour le Schéma Directeur d'Aménagement et de Gestion des Eaux du Bassin du Mono - July 2021



BBC NEWS
Sécheresse: pourquoi les pénuries d'eau augmentent le risque de conflits
 August 2021



FRANCE INFO
Congrès de la nature à Marseille: convention historique actant le projet Bio-Plateaux signée par la Guyane et le Surinam
 September 2021



MÉDIA TERRE
L'agriculture française, une des plus réglementées au monde - September 2021



LE POPULAIRE
En quoi consiste le projet Life eau & climat dont les premiers résultats ont été dévoilés à Limoges ?
 September 2021



SUD RADIO
Vers des coupures d'eau dans les Pyrénées Orientales ?
 October 2021



SUD OUEST
Tartas: L'OiEau enseigne les bonnes pratiques
 October 2021



LA DÉPÊCHE
Fédération de pêche : des techniciens en formation
 October 2021



CRTV NEWS
COFIL AFJ - CICOS Yaoundé, Cameroun
 October 2021



SUD OUEST
L'OiEau enseigne les bonnes pratiques
 October 2021



CRESEB
Restauration de la continuité écologique des cours d'eau
 October 2021



CEDRE
Démarrage d'une étude sur les déchets dans les réseaux d'eaux pluviales du territoire de Brest métropole
 October 2021



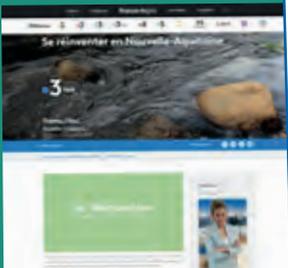
ENVIRONNEMENT MAG
L'OiEau soutient l'évolution technique du secteur
 October 2021



IWRA
Newsletter World Water Congress - November 2021



EUROPA
Réalisation d'une étude européenne sur la transition hydrique - November 2021



FRANCE 3
Se réinventer en Nouvelle-Aquitaine - November 2021



DAILY TIMES
Experts aim to launch platform for adaptation tracking - November 2021



EUROPA
Les politiques des collectivités territoriales en Europe pour le développement économique de leurs territoires - November 2021



CONSTRUCTION CAYOLA
Pourquoi la Guadeloupe a soif ? Explications
 December 2021



EMPLOI ENVIRONNEMENT
La filière de l'eau en manque de compétences
 December 2021



ENVIRONNEMENT MAGAZINE
Accord entre le Cerema et l'OiEau pour un meilleur accompagnement des politiques de l'eau
 December 2021

STAKEHOLDERS' CONTINUING TRAINING ON WATER, SANITATION, WASTE AND ENVIRONMENT

Despite the persisting COVID crisis, 2021 was marked by the resumption of vocational training.

OiEau observed a marked expectation from its clients for the return of face-to-face training in particular, equivalent to pre-COVID years, on the themes “stormwater harvesting”, “service management”, “treatment”, “drinking water production”, etc.

Some traditional clients, who had suspended their requests during the COVID crisis, once again called upon our services. Internationally, following a sharp decline due to public health restrictions in 2020, a return to normality began in 2021, with a nice synergy between training and technical support activities. Alongside this, OiEau saw increased traction with large metropolises, local authorities and inter-communal trade unions.

This COVID crisis was an opportunity for our association to expand its remote training offering. Activity in 2021 was well-established, with 900 people trained remotely.

OiEau renewed its ISO 9001 quality certification in March 2021 and obtained Qualiopi certification in September. This official recognition attests to our compliance with the new requirements of the French Vocational Training Reform and our commitment to maintaining the eligibility of our training courses for associated funding.

Educational engineering activity developed towards competency assessment, the design of training plans and the launch of a new block-release training course leading to a qualification as a Water Treatment Technician, in partnership with Ahun Agricultural College (CFA). Moreover, as co-pilot of the prospective study on employment, professions and skills (EDEC), OiEau helped to finalise and publish it in 2021 on behalf of the French Water Sector.

Finally, 2021 was a year for preparatory work on the launch of part of the new website offering new presentation features for our training courses, research and online registration.

“
For many years, Grand Lyon (Greater Lyon) has used OiEau training, conducted on our premises and in Limoges and La Souterraine, as it is an effective way to adapt our staff's skills. Thanks to this positive return on investment, we are confident in the quality of the training provided by OiEau on the exercise of Water and Sanitation powers in Grand Lyon.”

Metropolis of Greater Lyon

+ 40 years
of experience

35 permanent
trainers

364
training programs

& 590
sessions per year

5 000
people trained per year

14 250
training days

All levels:
workers, technicians, executives

Face-to-face,
distance and
digital training

45 000 m²
of educational units for
work situation scenarios



Digital content: OiEau expands its resources

In 2021, OiEau continued developing digital content at an accelerated pace – building on the work begun in 2020 – in order to address the current and potential future needs of a wide range of customers and partners (local authorities, consultancies, manufacturers, equipment suppliers, elected representatives, central and local government technical departments, aquatic environment managers, and stakeholders involved in water intake areas and stormwater management).

Thanks to the hard work of a multidisciplinary team, OiEau has already developed a wide range of resources, in various formats and covering different themes. Some examples are given below:

Distance learning

60 sessions have already been scheduled and are available in the catalogue, covering topics such as sanitation network installation, industrial robot programming, biogas recovery and Water Health and Safety Management Plans (PGSSEs).

Webinars

30 webinars have been delivered as part of various projects and covering different topics, such as CARIBSAN (see p. 45) and improving stormwater management practices, for audiences including local authorities, water agencies, the World Bank, the French Office for Biodiversity (OFB) and the International Network of Basin Organizations (INBO). In 2021, more than 2,000 people from France and worldwide attended these sessions.

Animation

The animated resource, produced using motion design and presenting the National Water and Sanitation Services Observatory (SISPEA), is available on OiEau's YouTube channel (<https://youtu.be/U-U96Tm7NUs>).

E-book

An interactive presentation on wastewater treatment was produced for the Adour-Garonne and Loire-Bretagne water agencies.

Educational game

A storyboard was developed on the use of pressure regulation valves in drinking water supply systems.

Virtual tour of technical facilities



This tool, which is used at in-person training sessions, allows participants to work on practical case studies and take a virtual tour of sites.

Videos on specific skills and operations

Videos were produced on a wide range of topics (detecting leaks, interpreting a pump curve, pre-detecting leaks acoustically, etc.).

The OiEau digital unit, which was set up in 2020, is also tasked with boosting employees' digital skills through short courses.

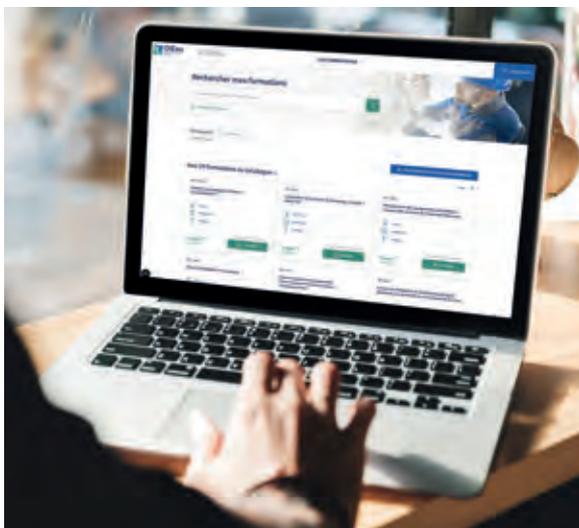
Focus on...

On 21 January 2021, OiEau hosted an EPNAC (Evaluation of new wastewater treatment plants for small and medium-sized communities) technical information day. The 100% online event, which was open to all, attracted 125 participants (local authorities, departmental councils, water agencies and consultancies) from mainland France and overseas French territories. The attendees interacted with 14 speakers and experts from OiEau over the course of nine straight hours, combining plenary sessions, workshops and subject-specific virtual breakout rooms. The resources, videos and presentations were shared with participants via Moodle, OiEau's online learning platform.

“The EPNAC-OiEau technical day, held entirely online, was a resounding success. The blend of formats – plenaries, workshops, pre-recorded presentations, open discussion spaces at lunchtime and moderated sessions – promoted interaction between the attendees and speakers.”

Mr Garnaud-Corbel
Research Officer, “Water, biodiversity and urban development” - French Biodiversity Agency (OFB)

New online access to our vocational training courses in water, sanitation and the circular economy



The International Office for Water (OiEau) has been a leading provider of vocational training for water, sanitation and circular economy professionals for more than 30 years.

As technology has advanced, the way in which OiEau's courses are displayed on its website has changed many times since the early 2000s. In 2021–2022, the website is entering a new era with the integration of features typically found on e-commerce sites.

With the search engine, users can apply pre-selected filters and use key words to find relevant courses, which are displayed in card format. Anyone can create a personal account, while training managers can create an organisation account that lets them:

- select favourites,
- register people from their organisation,
- generate quotes,
- pre-register for courses and generate pre-populated reports,
- view a pre-registration history.

“We want to create a website that places the customer at the heart of the browsing experience, with help and support at every stage of the viewing and ordering process. The site is packed with accessible and user-friendly features, making it easier to browse courses, pre-register and generate reports and quotes, all via a personalised space. It is a first step towards the addition of further features in the future (online payment, invoices and credit notes, employee permissions management, etc.) and the inclusion of other OiEau services and areas of expertise (Support-Assistance and Consulting, Information Systems and Data Enhancement, Stakeholder Networking). “The website will be a go-to resource – a dynamic, functional platform providing a detailed overview of our areas of activity, our teams and our areas of expertise, and a fully fledged e-commerce site through which we will market our services.”

M. Laroye, Director of Sales, Marketing and Communication - OiEau.



Making sanitation networks central to our training programmes



France's sanitation networks run to a total length of 400,000 km. Under the regulatory framework and best practice governing sanitation service management, operators must carefully install, maintain and repair networks in line with the recommendations set out in guide 70-1 of May 2021.

As part of its work to protect these assets, OiEau has developed a number of training courses on this subject.

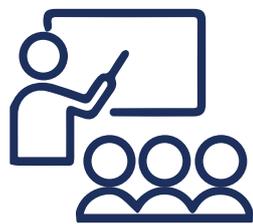
OiEau's programmes are designed to help learners expand their skills and develop their practices so they can meet current and future challenges, covering topics such as the design and installation of main sewers and branch pipes, as well as repair, operation, renovation and asset management.

These operations are all essential in ensuring that effluents are collected and transported in a way that dramatically reduces direct discharge into the natural environment before they are treated appropriately at wastewater treatment plants.

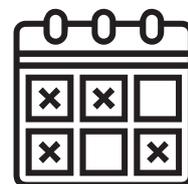
At its training centre – especially at its La Souterraine site – OiEau has a team of permanent instructors, a network of outside facilitators and a range of learning platforms including an above-ground sanitation network, another network that learners can enter and inspect (and that can be used for CATEC confined spaces training), sanitation pipe laying platforms and an exhibition room displaying kit and equipment.



1,000
participants
trained in 2021



2,700
trained
over the past three years



Implementing Water Health and Safety Management Plans with French Regional Health Agencies

Since 2018, OiEau has been working with the Nouvelle Aquitaine Regional Health Agency (ARS) as part of its Regional Health and Environment Plan (2017-2021) to promote Water Health and Safety Management Plans (PGSSE). OiEau is also supporting the ARS of Occitanie, Provence Alpes Côtes d'Azur, Pays de la Loire and Centre Val de Loire.

PGSSEs are tools intended to help local authorities anticipate health risks to users of drinking water services. Although drinking water services in France are still largely unfamiliar with them, they are among the obligations in the new European Directive on Water Intended for Human Consumption. The many actions conducted by OiEau with the different ARS since 2018 include:

- Running regional committees,
- Raising awareness among elected officials and technicians from local authorities,
- Implementation training for PGSSEs (Case study. Employing operational realisation methodology. Newsletters. Webinars.),
- Drawing up specifications or a methodological guide presenting the 4 phases of a PGSSE,
- Methodological support for a public body for cooperation between towns and cities, on implementing their PGSSE,
- etc.

For the Occitanie region, OiEau has conducted 21 awareness-raising actions (6 of them remotely), 15 training courses, 1 video, 1 leaflet, 1 simplified methodological guide, and support days for local authorities.

In 2021, a survey was sent out to 533 people in charge of water production and distribution from the Nouvelle Aquitaine region, in order to establish an overview of operational PGSSEs and identify any obstacles to their launch. This survey will continue in 2022.

Furthermore, more limited awareness-raising or training actions are currently under way in the areas covered by the Ile de France ARS and Hauts de France ARS.

These many actions for the ARS have allowed OiEau to expand its training offer in its catalogue courses, particularly through the B028 training course on Water Health and Safety Management Plans, which takes place in our training centre over 3 days.



Example of a video and leaflet made with a view of raising awareness of the PGSSE



[©www.youtube.com/watch?v=qhU5q2GdTaI](https://www.youtube.com/watch?v=qhU5q2GdTaI)

OiEau Training Centre's commitments to QUALITY



The satisfaction of our clients and quality of our service have long been priorities for OiEau.

OiEau has held ISO 9001-2015 certification since 1998 for the design and realisation of training services for water professions, on its «catalogue» and «à la carte» courses in France.

In September 2021, our association obtained QUALIOPi certification, which replaces the VeriSelect certification that we have held since 2017. The French Vocational Training

Reform, introduced by the law of 5 September 2018, requires organisations conducting skills-development activities that wish to receive public funding to hold a certification established according to the National Quality Standard (RNQ) by an accredited certifying body.

Obtaining this certification is a real asset for OiEau and our clients, as it enables them to apply for public funding to take our training courses, guarantees that our training process complies with the RNQ and allows them to benefit from the optimisation of our organisation and operations, in accordance with the 7 criteria and 32 requirements of this RNQ.

Training professionals in European French-speaking countries

2021 brought about a significant resumption of OiEau's training activities for European French-speaking countries.

For several years now, OiEau has been working for numerous clients and partners in Belgium. Most notably, the Société Wallonne des Eaux (SWDE) has entrusted our training centre with three weeks of training on the construction of drinking water networks. Similarly, OiEau regularly trains staff from the Société Publique de Gestion de l'Eau (SPGE, Public Water Management Company) on the same theme. Associations of municipalities are not to be left out, with training for staff from inBW (Brabant Wallon association of municipalities) on the digestion and dehydration of sludges.

In Luxembourg, OiEau has worked with the Institut de Formation Sectoriel du Bâtiment (IFSB, Construction Sector Training Institute) to conduct four training sessions on the "maintenance of disconnectors" and "testing and disinfecting drinking water lines". A partnership agreement has been signed between the two organisations, paving the way for greater collaboration in the future.



Practical work during a training session on "Pipe laying" at the IFSB ©OiEau

In Switzerland, the industrial companies CIMO and Merck used OiEau's training to train their staff on treating their effluents.



Conducting practical work on a CIMO industrial site ©OiEau

Continuing with its partnership framework agreement with OiEau, the Swiss Gas and Water Industry Association (SSIGE), a federation of Swiss gas and water distributors, and our association designed and implemented a course leading to a qualification on drinking water. The first 3-week series took place in 2021.

Moreover, the City of Lausanne trained its operators in the "Digestion of sludges from wastewater treatment plants" as part of the commissioning of its new treatment plant (STEP), the second stage in the three-yearly training plan decided upon in 2019.



Producing drinking water" training at the SSIGE ©OiEau

Finally, in 2022 the Romandy group for the training of treatment plant staff (FES) confirmed its historic partnership by beginning a new series of the 3-year course leading to a federal diploma.

OiEau working with the Tunisian National Sanitation Office (ONAS)



In 2021, OiEau conducted a feasibility study in order to build the skills development programme for ONAS staff at treatment plans, with financial support from the KfW (Kreditanstalt für Wiederaufbau) and the SECO (Swiss State Secretariat for Economic Affairs). The implementation of this ambitious training plan, involving 3 aspects (maintenance, laboratory methods and automation), provides for around 300 days, 35 different training subjects and 70 training sessions over the period 2022 – 2024, mainly in Tunisia but also in France.

The aim of this preparatory mission was to gain a better understanding of the expectations of ONAS decision-makers and to refine the syllabus and programmes in line with their needs; to evaluate the technical, logistical and human skills available on site (ONAS, OiEau and partners) and, finally, to verify the feasibility of conducting this training plan over the period 2022 – 2024.

Following on from this mission, in early 2022, the KfW, SECO and ONAS entrusted OiEau with conducting this training programme in order to provide the ONAS teams with support, for a greater understanding of the modern facilities of its sanitation sites.

"We have used OiEau's training for many years now. We have always been very pleased with it. We therefore have full confidence in OiEau's ability to conduct this strategic training programme for our staff."
Mrs. Boutheina, Training Manager - ONAS.

KNOWLEDGE DEVELOPMENT AND WATER INFORMATION SYSTEMS

For over 30 years, OiEau has been both a recognised expert in water and aquatic environments and a data specialist. Now, we are accelerating our digital transition as part of our 2021–2025 strategy and in keeping with our updated Articles of Association.

The advent of digital training (blended learning, webinars, training clips, etc.) has supported innovative advances in educational engineering, projecting us into a world that combines the real and the virtual. Our multimedia studio was put to use to create digital materials for the classroom and distance learning. All training materials were also put online on a learning management system (LMS) platform.

In our institutional and technical assistance missions, twinning and international multi-partner projects, we use digital tools to ensure progress in all our actions and to launch new projects. All the tools needed to carry out web conferences are used, ensuring stable links for several hundred participants. In some technical assignments, installations are fitted with online sensors with data transmission to enable our experts to diagnose and optimise certain processes in real time.

In our standardisation,^[1] information and knowledge activities,^[2] we are constantly seeking ways to better build on and share knowledge about water, biodiversity and the marine environment from Big Data. We are also exploring how to make this knowledge more relevant and accessible to various organisations, operating in different contexts and at different scales, including research into the future use of artificial intelligence services. And at the same time, we are working to improve data security and reduce the environmental impact of digital technology.

Information technology is of course vital to OiEau's activities. Our state-of-the-art equipment (connected classrooms, data servers) is part of what makes our teaching platforms unique in Europe.

“

With our partners, we're stepping up the development of tomorrow's digital services to support better water and ecosystem management in France and throughout the world.”

Mr Meunier

Director of Data, Knowledge and Information Systems - OiEau

 **Example:**

[1] www.sandre.eaufrance.fr
www.id.eaufrance.fr

[2] www.atlas-sanitaire-coquillages.fr
www.documentation.eauetbiodiversite.fr

OiEau, actor of the French Water Information System

In order to better understand and protect water and biodiversity, OiEau is working with the SANDRE (the french National Service for Water Data and Reference-dataset Management) to inspect and freely disseminate the French hydrographic reference framework. This reference framework lists the rivers, run-off, bodies of water, etc. across France's regions. It is the result of collaborative work conducted in advance by French Office for Biodiversity (OFB), the French National institute of geographic and forest information (IGN) and the French water agencies and offices.

The SANDRE recently underwent a major change. The project BD TOPAGE® aims to move from a mid-level French hydrographic reference framework (BD CARTHAGE®) to a large-scale (metric) reference framework that is more exhaustive, complies with the INSPIRE directive and is compatible with the IGN's large-scale reference framework (RGE®).

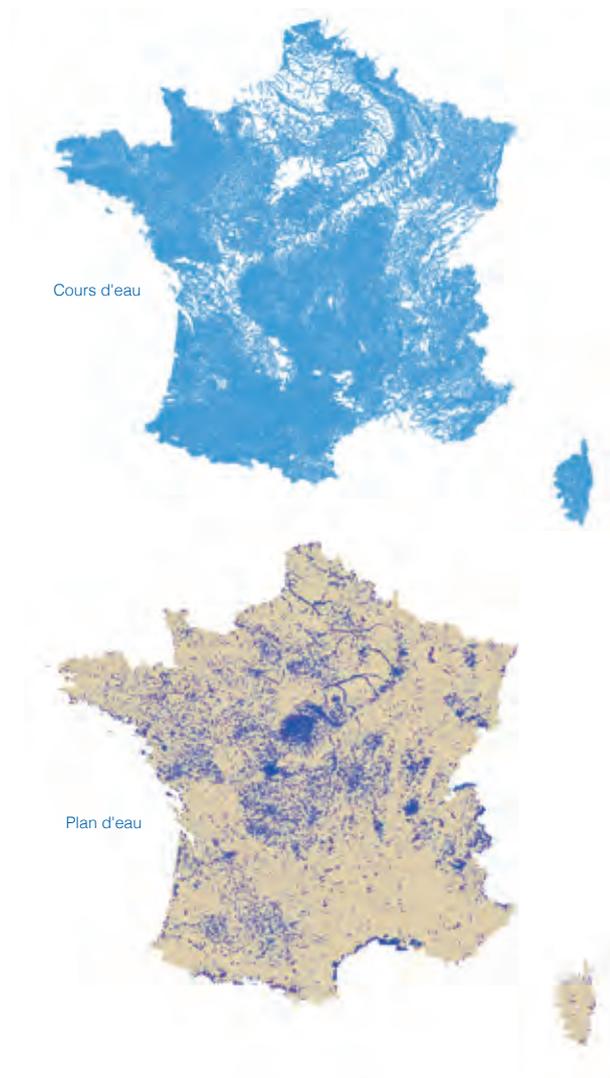
It aims to meet the shared needs of all stakeholders of the French national Water Information System (WIS).

As it is not a trade-specific reference framework, any needs relating to uses have been removed from the scope as much as possible. As such, this reference framework does not contain information such as any obstacles to run-off, the hydro-morphological or ecological characteristics of rivers, or their regulatory nature. This information will be provided by the professional data linked to this reference framework and produced by the WIS's data producers.

The majority of French WIS reference frameworks evolve naturally over time. The same applies for municipalities' reference frameworks. In order to help data producers follow the various changes to the reference frameworks collected, verified and disseminated by the SANDRE, OiEau is implementing a web tool for this platform in order to view changes to geographical reference frameworks (i.e. genealogy) over time, starting with municipalities.

This tool should allow for the data to be better contextualised in relation to water management challenges.

 **More information at:**
<https://www.sandre.eaufrance.fr>



In 2021, in France
(metropolitan and overseas territories)

253 320
rivers listed



In 2021, in France
(metropolitan and overseas territories)

31 037
water bodies identified



Permanently updating the Atlas of shellfish production and relaying areas

For health, transparency and regulatory reasons, OiEau publicly shares the health status of exposed live shellfish (mussels, oysters, etc.) near to and off the coast, with 24-hour responsiveness and across the French mainland. Shellfish producers can therefore be informed on the status of their area when harvesting and selling their production.

The Atlas also meets the reporting requirement under the Water Framework Directive (WFD) and the Marine Strategy Framework Directive (MSFD), as well as regulatory obligations regarding the accessibility and usability of data.

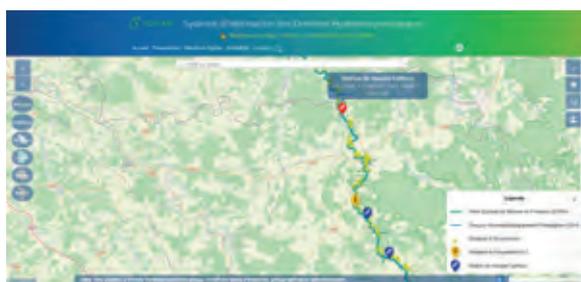
The Atlas of shellfish production and relaying areas is accessible in web and mobile versions. It shows the classifications of conchyliculture areas (the health status of listed conchyliculture areas) and the statuses of the areas (open or closed to shellfish production). These shellfish production or fishing areas bring together every collection, farming and professional shore fishing site, while leisure activities are not covered by this administrative division.

OiEau is therefore in charge of publishing health measures regarding areas governed by a

prefectoral order to open or close. It updates the statuses of areas in which there is a temporary ban or where a ban has been lifted on fishing, collecting, purification transfer, shipping, distributing and selling shellfish in certain areas. The hygiene classifications of areas producing live shellfish for human consumption are also updated.

“The Ministry of Agriculture relies on OiEau, which provides logistical support to the first communication mission on the status of the different zones for the different audiences (professionals like general public) (...) through a scalable tool; within a financial framework mastered and perennial. (...). The improvement continued service and passage in bilingual “French/English” of the tool registers thus in the wish of the European Union improve communication on the different shellfish zones between the different Member States.” Sub-directorate of Food Safety, Directorate General for Food, Ministry of agriculture.

Developing a visualisation platform for hydromorphological data – SIDHYMO



Of the 104,459 obstacles to flow (dams, thresholds, etc.) identified in 2020 in France (Source: OiEau), some have caused transformations to the morphology and hydrology of aquatic environments.

They sometimes represent genuinely impassable obstacles for the aquatic organisms that need to be able to move around freely in order to access essential areas for their reproduction, growth or food.

Since 2000, the Water Framework Directive (WFD) has set outcome targets for the good

ecological state of aquatic environments, compromised by alterations to the ecological continuity of rivers.

Drawing on its experience in the fields of water and information systems, OiEau was appointed by the French Biodiversity Agency to develop a prototype visualisation platform for hydromorphological data across the entire French national territory, known as “SIDHYMO”.

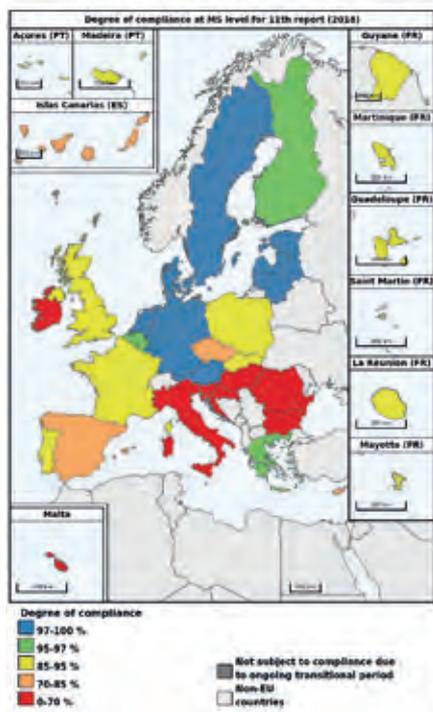
After gathering information on user requirements and collecting all the available data (spatial units of collection and analysis, homogeneous geomorphic reach, indicators for the CarHyCe measuring stations, etc.), OiEau conducted technical/technological and thematic processing work to create this unique and easy-to-use tool aimed at experts in charge of assessing water status, made freely accessible on the web.

 **More information at:**

<https://sidhymo.recette.oieau.fr/>

<https://vimeo.com/570230364/ab848e3482>

10 years of wastewater data enhancement in Europe... what next?



In 2012, the European Commission published a communication on the importance of **“Improving the delivery of benefits from EU environment measures: building confidence through better knowledge and responsiveness”**.

In response to this requirement, for 10 years OiEau has been developing the Structured Implementation and Information Framework (SIIF) by exploiting the very extensive data sets provided by the 28 Member States on the wastewater treatment situation. The system includes a web portal and 28 national sites (see the <https://uwwtd.eu> portal), interoperable APIs (Application Programming Interfaces) and calculation algorithms to assess conformity, check data and produce indicators and dashboards.

The implemented system fulfils a need to make wider and better use of data: once the data is approved, all the results can be made available online within a week. Work between the teams of OiEau, the Commission and the Member States has led to a significant improvements in the quality of and access to data. Today, the websites are used routinely and well beyond the sphere of water (emissions to air calculations, information for citizens, researchers, etc.). The added value of the SIIF has now been demonstrated and the European Environment Agency is set to gradually integrate the key features of the SIIF into its own information system.

 **More information at:**
<https://uwwtd.eu>

Assistance for users of MeasureStep

With financial support from the OFB, OiEau provides support to users of MeasureStep, a software suite for producers of self-monitoring data for sanitation systems. Operators can access the tool, which is made available by the French Ministry of Ecology, via the municipal sanitation information portal.

The software can be used to:

- describe treatment plants and collection systems;
- enter self-monitoring data;
- export the data in SANDRE format;
- analyse data (including for compliance assessment);
- produce monthly and yearly self-monitoring reports.

OiEau provides support:

- to wastewater treatment plant operators (urban areas, communities of communes, water authorities, large city authorities, etc.);
- to technical support services for wastewater treatment plants (SATESEs);

- to water police services;
- to water agencies.

In 2021, OiEau was contacted around 280 times to resolve problems relating to:

- the use and configuration of the software;
- data entry support;
- compliance with the SANDRE format for exports;
- data sharing with the water police and water agencies;
- etc.

Support requests are resolved via email, over the phone or by taking over the user’s workstation remotely.

OiEau can also provide MeasureStep user training. In early 2022, a new, improved “PostgreSQL” version of MeasureStep was released. This faster, more powerful version is cable of handling the sometimes large volumes of data produced by treatment plants.

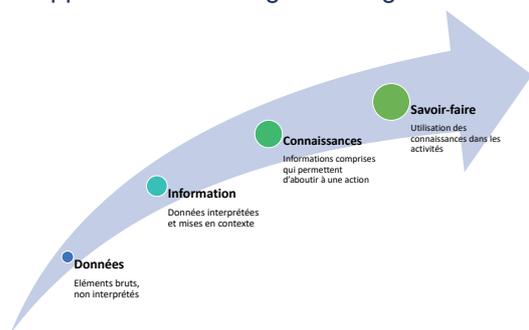
 **For further information, visit:**
<https://bit.ly/3b7mVro>

Building and sharing knowledge

Building and sharing knowledge has been a central aspect of OiEau’s work since its creation. In this area of its operations, OiEau identifies, collects, manages, shares and enriches knowledge in the fields of water, aquatic environments and biodiversity – a process known as knowledge-building.

The Information and Knowledge Unit is a cross-functional department. Its role is to ensure that OiEau has the necessary information to expand its knowledge and expertise in the areas of water and aquatic biodiversity.

To support its knowledge-building and sharing



activities, OiEau uses software tools, many of which are developed in-house, combined with subject-specific expertise.

The knowledge-building process: a source of innovation

Building knowledge involves:

- collating insights from information and strategic monitoring;
- compiling, structuring and linking information in order to preserve it;
- promoting and sharing information through newsletters, infographics and other means;
- enriching knowledge by producing analysis and summary documents and educational and outreach materials.

Since knowledge takes many different forms, it is shared in a variety of formats and through various methods, some examples of which are given below.



The “Glossary on water, the marine environment and biodiversity” contains definitions of key terms and is regularly updated as required. It currently contains over 1,900 terms, including 380 recent additions (in French, English and Spanish) and is available in various formats.

The “Water and Biodiversity Partnership Documentary Portal” features nine thematic focus areas, sharing scientific and technical knowledge by linking documents on the Portal to external resources (scientific, regulatory, data, etc.).

OiEau’s newsletters contain information for professionals (Documentary Network newsletter), as well as for experts and mixed audiences (professionals and members of the public) on specific topics (aquatic biodiversity, waste and methanisation newsletters). These newsletters provide a “fresh” perspective on the scientific and technical subjects they cover.

In 2021, OiEau published 12 biodiversity newsletters, around 50 newsletters on the topic of waste, and a further four for documentation professionals. In September, a Nouvelle Aquitaine Water Health and Safety Management Plan (PGSSE) newsletter reviewed action taken as part of the Health and Environment Plan, while the PACA PGSSE newsletter outlined why implementing a PGSSE is a good idea.

“Eaudoc”, OiEau’s documentary database, contains a wealth of information on subjects relating to water and aquatic environments. Regularly updated with new content over the course of several decades, it serves as a repository of useful information for OiEau experts, as well as for outside specialist and non-specialist audiences.

OiEau prepares summary documents on specific topics. These resources, which are intended for educational or technical purposes, support the building and sharing of knowledge. In 2021, OiEau published a summary document on the management of solid waste in rivers.

These various resources, which are all managed by the Information and Knowledge Unit, are interconnected and regularly feed into one another. Most of them can be accessed via the “Water and Biodiversity Partnership Documentary Portal”, which will form the central component of a new knowledge base currently being developed at OiEau. Containing a wealth of documentary resources provided by OiEau’s partners, plus tools developed in-house, it plays a key role in the building and sharing of knowledge.

The importance of WIS in IWRM

AWF



The African Water Facility (AWF) is an initiative led by the African Ministers Council on Water (AMCOW), which aims to facilitate implementation of the Africa Water Vision 2025 by stimulating investment, building water governance capacities and promoting the use of knowledge for planning, implementation and monitoring.

The AWF has asked OiEau to provide support in preparing knowledge products on the theme of “Water Resources Monitoring and Information Systems”, using the reports of the 13 funded projects on this theme.

The knowledge products requested include an overall assessment report, as well as 4 videos and documents with recommendations for public policies, across 4 specific projects.

Example of a project supported by the AWF:

www.africawat-sanreports.org

OMVG



In early 2021, the Gambia River Organization for Development (OMVG) launched an innovative project to develop the integrated management and cross-enhancement of data, following the principles of subsidiarity and interoperability between cross-border and national systems.

This project is receiving financial, organisational and technical support from the Swiss Agency for Development and Cooperation, the Geneva Water Hub (GWH), OiEau and the International Network of Basin Organisations (INWB), of which our association serves as Permanent Technical Secretariat.

It covers the co-creation of a regional platform for the integration and enhancement of data required for water resource management, produced by the various local, national and international institutions working on the OMVG’s cross-border catchment basins.

More information at:

<https://www.aquacoope.org/gwh/en>

Fasep



In Brazil, where just 46% of wastewater is treated and 39% of the urban population is still not connected to mains water, there is a major need for investment in order to protect drinking water supplies, particularly in the metropolitan regions of São Paulo and Rio de Janeiro.

As such, in 2021 OiEau launched the project “Monitoramento das Águas Residuais Urbanas e do seu impacto ambiental” (Monitoring Urban Wastewater and its Environmental Impact, MARU), funded by the Fund for Studies and Assistance to the Private Sector (FASEP). Working in

partnership with the Brazilian basin agencies AGEVAP and PCJ (Piracicaba, Capivari and Jundiáí), the aim is to reinforce the monitoring and assessment of urban sanitation in the basins of Paraíba do Sul, Guandu and PCJ.

This project aims to reinforce regular monitoring of the impact of urban discharge on aquatic environments, in order to improve the actions and investments to be implemented.

More information at:

<https://www.oieau.fr/actualites/oieau/cap-sur-le-projet-maru-au-bresil>

TECHNICAL AND INSTITUTIONAL SUPPORT – COOPERATION

OiEau is continuing to develop its activities supporting French public policies, disseminating innovative technologies such as spatial hydrology and digitising the water sector, and on smart meters, Nature-Based Solutions (NbS) and the circular economy.

OiEau offers support with changes to the water sector, be it by improving governance, developing quantitative management or considering cross-sectoral interactions with health, biodiversity, agriculture, energy, etc.

With over 100 projects managed in 2021, our actions cover the five continents, in the form of audits and consulting, running stakeholder networks, providing contracting assistance, drawing up and implementing funding regulations and mechanisms, or even creating information systems. The digital tools implemented in 2020, and a few targeted trips, have allowed us to successfully conduct our activities even during the successive waves of restrictions due to the COVID-19 pandemic.

**“
OiEau carefully cultivates this very rare ability to accompany both French local authorities that are reorganising their services as well as foreign foreign ministries that are reforming their regulatory framework, as well as industrialists faced with processing difficulties of specific treatment, as basin actors who wish better strengthen their planning. Needs on water cycles are vast, plural and universal. We strive to understand each question in its singularity, and to respond to it giving our partners the keys to act on their own”**

Mr Mino,
Head of Europe, Mediterranean,
Central Asia and China department - OiEau

OiEau and the modernisation of the Limoges Métropole wastewater treatment plant



View of ongoing work at the Limoges wastewater treatment plant ©OiEau

In December 2020, Limoges Métropole began modernisation, safety and energy efficiency work on the main wastewater treatment plant in the urban community.

Modernising and upgrading the treatment plant, with a load of 285,000 population equivalent, represents 44 months of work. Old structures are being replaced with new systems and facilities, including a new primary settler, a biomethane feed-in system and a third clarifier.

The work poses a significant challenge: continuity of service must be maintained (i.e. wastewater must be treated) and discharge standards must be adhered to, all while preserving living standards and guaranteeing the safety of the local population.

OiEau is handling communications for this project, including through a public website.

The purpose of the “Worksite section” is to illustrate the scope of the work through photos and videos taken by drone, in order to follow the project, step by step.

In addition, as part of the “Technical support for energy optimisation monitoring” component of the project, OiEau developed a series of energy efficiency improvement scenarios (doubling biogas production and recovery, targeting energy-intensive systems and operations, enhancing management) that could reduce energy use by an estimated 20%.

After completing this research, OiEau supported Limoges Métropole in preparing specifications for:

- conducting a comprehensive energy efficiency review of the wastewater treatment plant,
- implementing solutions to deliver immediate reductions in energy use,

- providing technical support for energy monitoring,
- installing monitoring software,
- deploying an energy management system.

In 2022, OiEau remains an active member of the steering committee overseeing energy-related research at the Limoges Métropole wastewater treatment plant.

 **For further information, visit:**
<https://www.step-lm.fr/chantier/>



©OiEau

Developing IWRM in Senegal: “Act quickly and together for water!”



Famed for its baobab forest just outside Dakar, the Somone basin is a key region for Senegal’s development strategy. The massive investments made in recent years (airport, motorways, free zones, etc.) are disrupting the balances of the basin and it is estimated that levels of groundwater abstraction are twice their refilling capacities.

In this context, OiEau, with the support of the Seine-Normandie water agency, has been working since 2019 with the Senegalese Ministry for Water and Sanitation to create and chair

Senegal’s first sub-committee on water planning and management (SCGPE).

In 2021, OiEau provided support in preparing prioritised action sheets on the theme of water efficiency. The pilot project has also been given an operating fund in order to define the first steps of this brand new consultation framework, by implementing urgent and no-regret measures, in particular to protect the Somone lagoon, which has Ramsar or Wetlands of International Importance classification.

This technical and institutional approach has drawn significant participation from basin stakeholders and echoes the slogan of the SCGPE: “Act quickly and together for water!”.



Transparency requirements for the Paris Agreement: Pakistan reinforces its national institutions

As part of the global dynamic established by the COP21 on Climate Change, which resulted in a consensus on the climate emergency, Pakistan has committed to reducing its greenhouse gas (GHG) emissions by 2030 through its Nationally Determined Contribution (NDC).

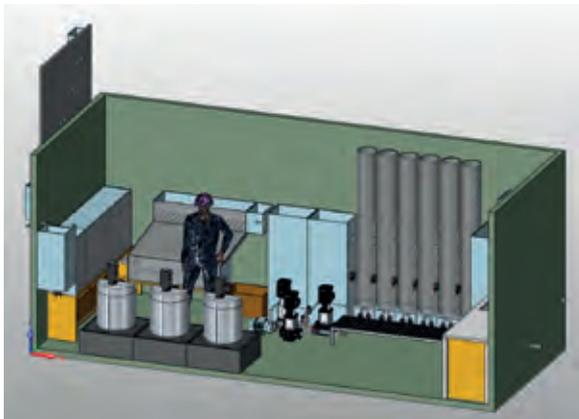
Moreover, article 13 of the Paris Agreement established an “enhanced transparency framework” and obliges each of its signatories to regularly provide the “information necessary to track progress made in implementing and achieving its Nationally Determined Contribution”. The MRV (Monitoring, Reporting and Verification) system is the key element in implementing the Paris Agreement on Climate Change.

In this context, with funding from the German Agency for International Cooperation (GIZ), the Global Change Impact Studies Centre in Pakistan entrusted the group formed of CITEPA (Interprofessional Technical Centre for Studies on Atmospheric Pollution) and OiEau with the



design and development of an integrated online MRV platform, followed by the addition of a module on the management of information on climate change adaptation. Based on the RISQ programme and developed jointly by CITEPA and OiEau, this tool was designed to support Pakistan in managing information on implementing the NDC as part of the Paris Agreement. It also aims to help the organisations in question to track their own progress in achieving the sectoral objectives of the NDC and facilitate the sharing of information.

Pilot design and development: a recognised area of expertise for OiEau



3D model of a water characterisation unit designed by OiEau ©OiEau

OiEau's 45,000 m² of technical teaching platforms are one of the main factors behind the OiEau Training Centre's outstanding reputation. These facilities, which are designed, built and maintained in-house, showcase OiEau's expertise. For the past 15 years, OiEau provides its customers and partners with this know-how for the design of pilot plants.

In 2021, OiEau provided expert support to a various projects, including:

- The design of a mobile water characterisation and treatment unit, with aeration, coagulation-flocculation, settling and filtration systems, for ASPAC International, a company that designs and builds drinking water supply systems. The purpose of this type of unit, which is installed in a 20-foot container, is to characterise raw water

"In early 2021, we tasked OiEau with designing a containerised water treatment simulation unit. We were particularly impressed with OiEau's expertise, especially in the following three areas: the water process, hydraulics and electrical equipment. Following our extremely constructive discussions with OiEau, we further refined the treatment unit's design and received recommendations, including after one of the components of the unit was commissioned. The study documentation was comprehensive and detailed enough to allow us to prepare a set of specifications for the production workshops."

Mr Kamp
Process Engineer - ASPAC Intl

and apply appropriate treatments in order to make the water drinkable.

- A technical study into the refurbishment of raw water treatment containers. OiEau was commissioned to conduct a comprehensive review as part of an initiative to extend the lifespan of existing containerised water treatment units. Through process optimisations, an inventory of components and obsolescence, tests, energy analyses and infrared thermal imaging, parts that required replacing were identified and operating procedures were developed in order to extend the operating life of these modules by a further five years. Training on operating and maintaining these units is currently being developed.
- An objective evaluation of a solar desalination technology in support of the International Committee of the Red Cross (ICRC).
- The development of two reactors incorporated into a pilot bio-oxidation facility for Orano, a French multinational firm specialising in nuclear fuels.



Infrared thermal imaging of the electrical cabinets of an ultra-filtration unit ©OiEau

"We are delighted with how quickly the service was performed. The assembled reactors, which are intended for a pilot bio-oxidation facility in Niger, work perfectly."

Ms Leycuras
Business Officer - Orano Mining
- CIME

Fiware4Water, an innovative three-year project to digitise the water sector (2019–2022)

The Fiware4Water initiative began in 2018 when partners from the digital technology and water sectors embarked on a joint project to demonstrate how the FIWARE platform could be used to develop digital solutions catering to the specific requirements of the water industry. The platform was already being used by other sectors (smart cities, energy, agriculture, etc.) to develop smart applications, but this was not the case with the water industry.

The main aim of the Fiware4Water project was to develop modular applications using FIWARE, along with an open, standardised, interoperable and secure application programming interface (API) for real-time management of water systems. The 14 project partners, coordinated by OiEau, successfully achieved the stated goal. The resulting tools, which are now available online, include algorithmic, artificial intelligence and machine learning modules.

Raw water

- Improving the conveyance system carrying raw water to the drinking water production plant in Athens.
- Improving the performance of the drinking water production plant by selecting the reservoir containing the clearest possible water.

Drinking water

- Predicting summer demand for drinking water in Cannes, and the availability of raw water.
- Detecting water quality anomalies in the distribution network.
- Detecting leaks in the distribution network.
- Launching a mobile app and installing smart sensors to encourage citizens to reduce water use.

Wastewater

- Anticipating and minimising the production of nitrous oxide based on incoming wastewater quality.
- Optimising the energy efficiency of a wastewater treatment plant.



For further information about the solutions developed under the project, visit:
www.fiware4water.eu

What were the outcomes of the project and what are the next steps for the sector?

The project demonstrated the feasibility of developing digital solutions for any type of water management system, using the FIWARE platform and its ecosystem of developers. The capabilities of the Fiware4Water core architecture developed and deployed as part of the project were demonstrated through a series of benchmark use cases. In addition, the business model and plan developed by an OiEau economist highlighted the specific potential of the Fiware4Water environment to support the development of “smart water” applications and to help SMEs and developers create a new generation of internet services in this field. In late 2021, the FIWARE Foundation created the dedicated Smart Water Domain Committee, of which OiEau is a member, to maintain the newly developed Fiware4Water interface.

Another of the project’s key objectives was to approach the digitisation of the water sector

through the lens of social innovation, combining technology-driven solutions with governance, capacity building and economic aspects in order to address a societal need. The Fiware4Water project included a large and varied range of socio-political and citizen engagement activities, including the use of the ConCensus methodology and the creation of Local Water Forums. This initiative proved successful and has now been adopted by the United Nations World Water Quality Alliance.



For more information, visit:
www.fiware4water.eu/demo

“The Fiware4Water project showed that it is possible to link the physical world of water to the digital world in order to address managers’ needs.”
Ms Siauve, Innovation Project Manager - OiEau.

Algeria - Greater understanding for better action: a twinning project to support the National Agency for Hydraulic Resources



As part of the Support Programme for the Algeria-European Union Association Agreement (P3A), OiEau is piloting the twinning project “Support for the modernisation and capacity building of the National Agency for Hydraulic Resources (ANRH)” for a duration of 25.5 months (Sept 2020-Oct 2022).

This project is implemented in a context of a structural shortage of water in the country, leading the government to undertake significant efforts in the water sector.

OiEau acts by supporting Drainage Basin Agencies through a bilateral France-Algeria cooperation programme, support for the National Water Plan, a contribution to the latest twinning project at the National Agency for Integrated Water Resource Management and, finally, support for the Institut National de Perfectionnement de l'Équipement, in the field of vocational training.

This new European twinning project is therefore part of a desire to support the Algerian Ministry of Water Resources and Water Security, for sustainable water resource management incorporating the risks arising from climate change (drought, flooding).

The aim is to modernise the ANRH in order to reinforce its water resource expertise and monitoring missions and to develop its service-provision activities.

The twinning project supports the following courses of action:

- 1 Adapting management and funding with the development of a performance contract with its supervising body to meet the aim of the reference body in the field of water resource expertise.
- 2 Invigorating the organisation of the ANRH with the development of job factsheets.
- 3 Gradually improving surface water, groundwater and hydrometeorological monitoring networks and laboratory analysis capacities.
- 4 Improving the management of data produced by the ANRH and developing means of sharing and exchanging in the agency's fields of reference.
- 5 Developing the ANRH's communication and visibility and raising awareness.

The twinning project, implemented by OiEau under the aegis of the Ministry of Ecological Transition (MTE) also involves the Office of Geological and Mining Research (BRGM) and the French Biodiversity Agency (OFB).

MANAGEMENT AND DEVELOPMENT OF THE NETWORK OF WATER STAKEHOLDERS

Running and implementing networks has always been an essential element of OiEau's work. Beyond knowledge and techniques, the human resources of organisations are of the utmost value in protecting water resources and their associated environments.

The synergies that result from networking, sharing experience and discussions within these communities of stakeholders are crucial in order to respond to current and future issues.

The limitations arising from the COVID crisis rendered these meetings and discussions between stakeholders more difficult. OiEau had to adapt, and now relies more heavily on a host of digital tools that make it easier to roll out and maintain the network of stakeholders.

In 2021, the old requirements linked to the pandemic were therefore transformed into opportunities (combining online and in-person activities), both to reinvigorate certain stakeholder networks and to launch new projects on a wide variety of themes and areas of intervention.

Through the diversity of its networks, OiEau creates numerous links between these different stakeholder communities, which reinforce integrated water resource management in France and around the world.

**“
Management of water resources relies on the skills of multiple actors. Animation and networking promote the expression and sharing of these skills ”**

Mr Barreau,
Water & Agriculture Project Manager - OiEau

Water4All: research and innovation at the heart of the basins



New European partnerships have been initiated as part of the “Horizon Europe” research and innovation programme. Their aim is to respond to the most pressing challenges that require concerted action on a broad scale.

Water4All (Water Security for the Planet) is one such partnership, with a work programme staggered over 10 years and based on 5 pillars:

- A** A shared vision and strategic agenda for Research and Innovation (R&I).
- B** Development of R&I actions through joint calls for proposals (European Commission and national research funding agencies).
- C** Science-Politics interface and end users.
- D** Demonstration of the efficacy of the solutions developed through R&I actions.
- E** Internationalisation.

Its preliminary budget is €420 M, 30% of which is provided by the European Commission, and it brings together over 70 partners from 27 countries in the European Union and beyond, including research and innovation funding agencies, political decision-makers, research bodies, local authorities, themed networks, etc.

Euro-INBO, the European network of the International Network of Basin Organisations (INBO), for which OiEau has served as Permanent Technical Secretariat since it was established in 1994, is one of the 6 themed networks of Water4All.

It contributes to pillar C, by coordinating the political support working group, which acts as a platform for systematic dialogue between the political, scientific and economic echelons.

The initial aim is to identify R&I requirements in order to implement policies and legislation on water, such as the Green Deal, the Water Framework Directive (WFD), the Circular economy action plan, the biodiversity strategy and the United Nations Sustainable Development Goals.

Due to the leverage effect of the Multiannual Objective Agreement with French Biodiversity Agency (OFB) on the activities of Euro-INBO, the expectations of European basin organisations will be better taken into account and they will be able to benefit from the results of European R&I more quickly.

 **More information at:**

<https://water4all-partnership.eu/>

Gest'eau Meetings – How to manage water bodies in the context of climate change ?

The Gest'eau Meetings are web-conferences that allow stakeholders in local water management to share their experience. They are organised by OiEau as part of the Gest'eau resource centre, with financial assistance from French Office for Biodiversity (OFB) and support from the French Ministry of Ecological Transition.

A Gest'eau Meeting took place on 14 January 2022 on the theme of "Managing bodies of water in the context of issues related to climate change." What are the regulations surrounding bodies of water? What are their impacts in terms of the quality and quantity of the water resource? To what extent are they included in SAGEs (water development and management schemes)? What actions should be taken to solve thermal and eutrophication problems, encourage the removal

of obstacles, etc.?

It brought together nearly 90 participants around speeches that addressed the subject from different angles, including regulations, scientific expertise and feedback.

Six speakers offered their complementary perspectives on the issues: Claire-Cécile Garnier and Emma Gahinet (Ministry of Ecological Transition), Florence Habets (CNRS/Ecole normale supérieure de Paris), Stéphane Lorient (EPTB Vienne), Mélanie Fayet and Nicolas Tournier (Célé - Lot médian joint association).

 **Find the videos of the speeches and the presentation material:**

<https://www.gesteau.fr/rendez-vous-gesteau>

The French "Water and Biodiversity" documentary skills network: working together to develop our professions!

Last November in Limoges, OiEau hosted members of the French "Water and Biodiversity" documentary skills network for two days dedicated to discussions and learning about various projects.

The aim of this seminar was to put professional developments into perspective, from the field of document management towards the field of knowledge management, in a context of increasing digital practices.

The first day, on the theme "From document management to knowledge management: developments to our professions", allowed for discussions with several speakers (French National Institute of Art History, the head of the documentary sciences master's course at the University of Poitiers, project Data.bnf.fr, FLA consultants, Foxcub/Navigae and OiEau), chaired by Renaud Fabre, Emeritus professor and former director of scientific and technical information at the CNRS. Presentations alternated between knowledge-sharing projects in the context of the Semantic Web and perspectives on skills to be developed, through initial training or in a professional context.

These discussions, which were broadcast live,

allowed information professionals to take part remotely.

The second day focused namely on the implementation of a future joint monitoring plan to be shared through the "Water & Biodiversity" portal. Regular surveillance of new developments in order to maintain knowledge, follow partners' progress and develop a more strategic approach are key when it comes to forging a career as an archivist.

Each participant had the opportunity to discuss their needs and expectations with regards to a future knowledge base and its features, currently in development at OiEau, which will draw on the technologies of the Semantic Web and aims to open up the "Water & Biodiversity" portal to other selected, reliable electronic resources.

"This seminar fully addresses the exponential developments to our documentary professions and confirms that document management has now become knowledge management, over which the digital reigns supreme." Documentalist, member of the documentary skills.

Natural Water Retention Measures: sheets to facilitate their implementation

To meet regional challenges relating to water, local authorities and other project leaders are increasingly turning to solutions based on the proper functioning of ecosystems and their capacity for resilience.

These include natural water retention measures or NWRM, which help restore the natural properties of ecosystems to slow surface water runoff and increase the infiltration capacities of the soil.

Feedback demonstrates the many benefits of these actions, in particular the ways in which they can respond to the issues of flooding, drought, water quality, loss of biodiversity, etc.

In order to support NWRM project leaders and stakeholders involved in rolling out these measures in different contexts, OiEau produces summary sheets for different challenges, such as erosion, drought, pollution, urban resilience or flood risk.

Each sheet lists the NWRMs most relevant to the specific challenge and provides guidance on how

to implement them (regulatory context, financial aid, action programme, potential partners, etc.).

A total of 5 sheets will soon be published.

 **More information at:**

<https://bit.ly/3tMMPqL>



OiEau at the 100th Astee Congress



Astee (the Scientific and Technical Association for Water and the Environment) held its 100th Congress in Paris from 28 to 30 September 2021. The theme of the event was the citizen user at the centre of the water and waste sectors.

OiEau led a “world café” session on the issue of better communicating regulatory information on water to users. Participants were invited to discuss different methods for accessing information about water-related services and to share experiences in order to strengthen user communication.

The workshop focused on questions including how to get messages across and how to explain

users' rights and duties so that they can fully understand their degree of engagement and make a personal and collective contribution to day-to-day water management.

The session saw plenty of ideas and experiences being shared. For instance, when discussing communication channels, the discussion turned to the benefits and threats of social media. Two of the experiences shared by participants prompted contrasting reactions. The first demonstrated how the lack of control on social media could pose a threat, while the second underscored the benefits of these platforms in terms of reaching younger people, who are often overlooked in communications. The workshop results were documented as a series of points for improvement.

The session was covered in an article in the Astee journal (TSM No. 1/2, 2022), which detailed the main results.

Explore2, the futures of water

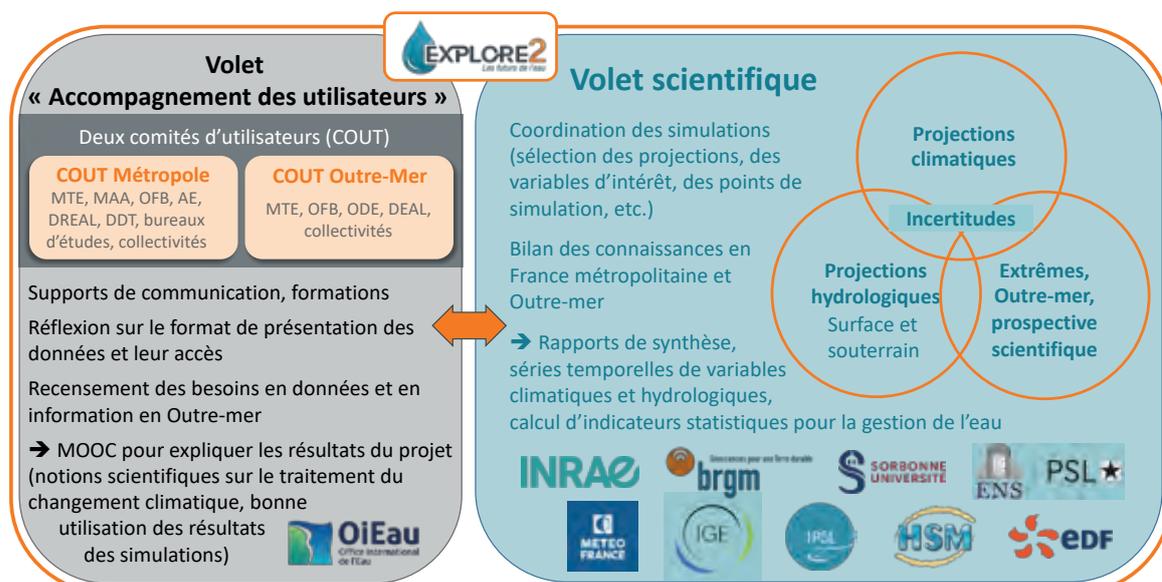
A four-year project (2021–2024) to understand the impact of climate change on hydrology by 2100

Adapting to climate change is a major goal and is now accepted as a part of sustainable water resource management. Local adaptation is essential, and there are currently many questions about the link between climate change and changes in hydrology. In order to build specific, local climate change adaptation policies and programmes, managers require robust scientific data. To address this need, as part of the Explore2 project, a team of scientists led by the National Research Institute for Agriculture, Food and the Environment (INRAE) will draw up hydro-climatic projections for 2100 for mainland France, using data from the IPCC CMIP5 (2013). This project follows on from Explore2070, a 2012 initiative that assessed the impacts of climate change on aquatic environments and water resources by 2070, based on the IPCC's fourth assessment report (AR4, 2007). Explore2 aims to update these projections and expand the number of flow calculation points (limited to 1,522 in Explore2070) along the river system in order to provide results for smaller catchment basins that are not metered. Based on the findings, it will be possible to characterise the climate at a resolution of 8x8 km² and to assess changes in surface and ground water availability throughout the 21st century under different greenhouse gas emissions scenarios (RCP 2.6, RCP 4.5 and RCP 8.5).

A collaborative project between scientists and future users of the results

As well as updating the projections based on more recent data, the Explore2 project also aims to foster closer collaboration with users of the results (basin committees, water agencies, local authorities, consultancies, etc.). In line with this goal, OiEau is leading the stakeholder assistance component of the project, which aims to precisely identify users' needs and to ensure that the results of the hydro-climatic projections produced by the scientists are properly understood. This part of the project, which focuses on helping local stakeholders make use of the hydrological indicators produced by the scientific consortium, will include awareness-raising, communication and training activities for different user groups. Several user committees have been established and their members are regularly informed and consulted.

This project is closely linked to the EU LIFE Water&Climate project (2020–2024), which is coordinated by OiEau and aims to help local management stakeholders assess the impacts of climate change on their territory and to develop adaptation plans accordingly.



Co-financements :

Assistance à maîtrise d'ouvrage :

BIO - PLATEAUX: greater awareness for better management of transboundary basins catchment basins



©OIEau

The Oyapock and Maroni cross-border catchment basins, located on the Guyanes plateau, are home to exceptional ecosystemic and cultural diversity.

To ensure the sustainable and shared management of these resources, coordination between neighbouring countries is essential. In this context, the BIO-PLATEAUX project reinforces mutual understanding and awareness of water resources.

The initiative is co-funded by the European Union through the Interreg Amazon Cooperation Program, the Guyana Water Board, the General Directorate for Territories and the Sea (DGTM) and the National Centre for Space Studies, in partnership with the Territorial Authority of French Guiana.

Of note among the many activities in 2021 were the official launch of the platform www.bio-plateaux.org, the running of lessons on water and the organisation of cross-border technical groups.

A Partnership Framework Agreement was signed at the project's third steering committee in September 2021 between Suriname (represented by Mr. Nurmohamed, Minister of Public Works) and France (represented by Mr. Lecornu, Minister of Overseas Departments) in order to better combat flood risks. In an example of concrete action, a few weeks later, the first station to be shared between two countries was installed on the Tapanahony, the main tributary of the Maroni river.



“The installation of a gauging station on the Tapanahony is a long-term project that involved the work of several of my predecessors. Our understanding of this river, which represents nearly 40% of the Maroni catchment basin, is very important in order to predict high water levels and for our general awareness of the basin. This project provides the keys to success.”

Mr MASSON,
Hydrological Surveillance Unit
DGTM Guyana

“The BIO-PLATEAUX project is very important and in the interest of both countries. By conducting research into water resources and biodiversity, as well as exchanging knowledge, we have been able to extract a great deal of information from the data collected (...) that we have exchanged with the relevant stakeholders.”

Mr KOSSO,
WLA - Ministry of Public Works -
Suriname

“This cooperation is beneficial for all the countries, but especially for the communities living alongside the catchment basins.”

Mrs SATNARAIN,
Anton de Kom University - Suriname

SOME CROSS-SECTORAL PROJECTS

OiEau has a long-standing strategy of ensuring that its customers and partners better understand the complementary relationship between its different activities. By adopting a more integrated approach to the work of its in-house teams, OiEau has been able to carry out larger, more complex projects involving a combination of expertise, training, and data and information management.

A cross-sectoral approach – involving multiple stakeholders and cutting across several themes – has become essential in order to incorporate climate change issues into water resource management. For instance, many urban areas in France and institutions around the world are developing measures as part of ecological transition projects spanning 5, 10 or 20 years.

For these major challenges, change-management support is critical at all levels of governance, as well as at the operational implementation level.

OiEau is ideally placed to assist all local stakeholders, bringing to bear its independent expertise, its excellence in training, knowledge-building and collaboration, and its capacity to evaluate, produce and analyse data.

OiEau is becoming the multidisciplinary partner of choice – for institutions, elected representatives, industrial companies and other resource users – in meeting the challenges of today and tomorrow.

OiEau carries out these cross-sectoral activities as part of multiannual programmes, framework agreements and projects, in every case working with sufficient agility to adapt to constantly changing needs and the results achieved through its support.

“
Scientific knowledge, technical training and geomatics have become essential tools for understanding, visualising and predicting complex, multi-themed, multi-stakeholder systems. By combining these approaches, it is possible to collaboratively decide upon and implement key measures for building the adaptation capacity and resilience of all water users and stakeholders.”

Mr Laroye

Director of Sales, Marketing and
Communication - OiEau

Coordination and awareness-raising of integrated stormwater management in the French Grand Sud-Ouest (South-West)

For 2 years now, in partnership with the Adour-Garonne, Loire-Bretagne and Rhône-Méditerranée-Corse water agencies and the Occitanie region, OiEau has been coordinating awareness-raising actions in the regions of Nouvelle-Aquitaine and Occitanie on integrated stormwater management.

This is an approach towards changing historic practices based mainly on the implementation of collection and evacuation networks, by replacing them with more natural techniques known as Nature - Based Solutions (NBS).

The challenge of this approach is to obtain a more resilient region in light of climate change and its consequences, such as rising average temperatures and the increasing frequency of exceptionally heavy rainfall.

The actions conducted by OiEau in 2021 and the next 2 years cover:

- Cultural integration webinars for elected officials, technicians, town planners, landscapers, developers, state services and all other stakeholders involved in urban development. Once the public health crisis we are living through is completely under control, these actions will be conducted in person, combined with visits to example sites.
- Highlighting local actions that have already been completed successfully, and creating a network for local stakeholders to enable everyone to benefit from concrete feedback, specifically through a website currently being developed.
- Sending out targeted documents or educational material to facilitate collective awareness-raising.



Presentation of feedback in a rural setting in the Hautes-Pyrénées during a webinar ©OiEau



Green space to manage stormwater in a car park - Limoges ©OiEau

Focus on limiting the artificialisation of soils

Since August 2021, French legislation has evolved towards a sounder use of spaces with the “Climate and Resilience” law that aims to achieve net-zero artificialisation of soils in 2050 and limit the total consumption of space to half of that observed of the previous ten years, for the period 2021-2031.

In the short term, this law sets an obligation for zero soil sealing on all or part of car parks at shopping centres, cinemas, industrial and office buildings, as well as public car parks, either during their construction or during major renovation.

In order to best support its clients and partners through these processes, OiEau has developed regulatory and technical training courses on the themes of “water and town planning” and “integrated stormwater management” and offers an educational space dedicated to this theme.

🌐 Access the recordings of the different webinars:

- Exercising jurisdiction for urban stormwater management:
<https://vimeo.com/545044953/c1b9fb6dbf>
- Feedback from a rural environment in departments 64 and 65:
<https://vimeo.com/557595235/ea94e05d84>
- Feedback from an urban environment in departments 40 and 65:
<https://vimeo.com/568894762/fbcec10643>
- Feedback from department 34:
<https://vimeo.com/571646195/fe5ab6bf1b>
- Feedback from departments 15 and 24:
<https://vimeo.com/654546313/e5c3407ba4>

Nestlé and OiEau: a reinforced partnership

Following on from the year 2020, in 2021 the NESTLÉ group and OiEau continued to forge a solid partnership on cross-cutting themes relating to industrial water.

During a period of intense activity for its production workshops, NESTLÉ developed an auditing format for its wastewater treatment facilities in conjunction with OiEau.

Operations on site, lasting two to four days, allowed the routine processes to be examined from all side in light of feedback from OiEau.

The aim was to review a series of relevant criteria, such as design and sizing criteria, analytical means and online instrumentalisation, preventive maintenance and operational risks and, finally, regulatory compliance.

A prioritised action plan was given to NESTLÉ's teams to boost the operational control of effluent treatment, both at internal operating plants or appointed ones, for discharge into the collective wastewater network or into the natural environment.

Having initially been rolled out across NESTLÉ FRANCE sites, the audits were gradually expanded to the group's other entities, such as NESTLÉ PURINA and NESTLÉ WATERS. At the same time, the signing of a framework agreement enshrined a lasting partnership between the NESTLÉ group and OiEau. This has been materialised through different aspects, such as:

- training, at OiEau in Limoges, on technical management and technological choices for the design/renovation of a plant,
- tailored training focused on the treatment facilities of industrial, with classroom training and application. The programme combined classroom teaching with concrete application at the treatment plant. OiEau's practical approach to processes used in the trade was well-received by the operating staff, as was the teaching, which aimed to restore meaning to operating routines,
- the agile method for the technical support in order to further boost the staff's skills. Conducted remotely, these exchanges helped to really consolidate the operational experience acquired in the long-term.



Côte d'Ivoire: a promising partnership, initiated by SODECI and OiEau

In 2021, the Côte d'Ivoire Water Supply Company (SODECI) and OiEau signed a partnership framework agreement covering all of the two organisations' activities, and more specifically training and educational engineering. Most notably, this agreement includes support for the development of SODECI's Water Training Centre (CMEAU).

Starting in 2021, several actions have been carried out to this end, such as the organisation of strategic discussions between operational departments (HRD and CMEAU) and the implementation of "Hydraulic study - Level 2: Pumping and distribution" and "Choice of treatment plant technologies in sanitation projects" training courses.

Two other training courses on the themes "Sanitation network" and "Lifting stations" have already been scheduled for 2022.

In addition, as part of a works programme that aims to reinforce the drinking water network in the Abobo district of Abidjan, OiEau is working with the



Conducting a "Treatment technologies" training course at SODECI

Belgian contractor ASPAC on diagnostics in order to ultimately establish the hydraulic model for these pilot areas and guide its consolidation.

A CMEAU delegation conducted a study trip to France in December 2021 to visit OiEau's training centre and plan the joint actions that will contribute to this partnership.

IWRM and Sanitation in Bolivia: OiEau provides technical and institutional support



Bolivia, a landlocked country with a population of 11 million, is one of the poorest states in Latin America, despite strong economic growth supported by the exploitation of its mineral and energy resources. The country is also particularly affected by climate hazards, including severe droughts and the melting of the Andean glaciers. Bolivia faces numerous challenges in addressing inequalities and climate change, requiring more sustainable and coordinated management of its water resources. This is all the more important at a time when demographic and economic growth is causing a sharp rise in demand for water. As an added challenge, Bolivia lacks robust drinking water and sanitation services.

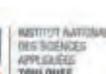
In this context of heightened pressure on water resources, OiEau has been working to support integrated water management policies since 2019 under a Fund for Technical Expertise and Experience Transfers (FEXTE) cooperation

agreement signed with the Bolivian Ministry of Water and the Environment and the French Development Agency (AFD). One of the priorities of this project is to restore the connection between the small water cycle (sometimes known as the technical cycle) and the natural cycle (also called the large cycle).

In pursuit of this aim, OiEau is providing technical and institutional support on IWRM and sanitation issues in two pilot basins: Rio Katari (Altiplano region) and Rio Rocha (Cochabamba region). One of the key aims of this support is to place wastewater treatment plants in a larger chain (including wastewater collection, pollutant load transport, plant performance, etc.) linked to the sometimes reduced acceptability of natural environments. Common, simplified quality indicators will be defined for this entire chain.

By supporting basin committees in this way, OiEau is contributing to better resource use and a more integrated approach to water management. Taking a participatory, "bottom-up" approach, the activities carried out in the pilot basins are informing wider thinking on IWRM and its implementation nationwide. This thinking is supported by integrated planning tools, which are intended to be implemented locally, including through urban planning and local development documents.

The ZEUS project: Zero Liquid Discharge in the agrifood industry



ZEUS is an Industrial and Territorial Ecology project. It aims to demonstrate the value, as well as the technical and economic feasibility, of the concept of “Zero Liquid Discharge” in the agrifood industry, by drawing on an approach that involves reusing water and adding value to co-products. The project is funded by the European Union, as part of the LIFE programme.

The originality of the project lies in the separate treatment of saline discharge streams at the source in order to regenerate and reuse them in proportions greater than 75%.

The project’s partners are the companies Monin (high-end drinks syrups) and Chemdoc (a manufacturer of high-technology equipment), the Toulouse National Institute of Applied Sciences (INSA) and OiEau.



Présentation graphique de ZEUS

“MONIN has always been concerned about its environmental impact, and particularly its water use. The Life project helps show us the way to zero-discharge, more ethical industry.”
Mr MONIN, President - MONIN

The Zeus project in brief

The technology used is based on the coupling of several membrane-based technologies (ultra- and nanofiltration, reverse osmosis), which allows streams to be separated (water/salts/nutrients) and by-products to be recycled/given added value.

The project includes 5 key actions:

- design (prototype, laboratory and trials at the MONIN site in Bourges),
- monitoring (surveillance, collection and visualisation of data),
- characterising environmental and socioeconomic impacts (the quality of treated wastewater and life cycle analysis),
- duplicating experience derived from the project for other agrifood industries (decision support matrix; transfer, enriched book, industrial trials),
- and finally, communication and dissemination (creating a website, open days, events, videos).

More specifically, OiEau is involved in the design and development of the laboratory, monitoring, characterising environmental and socioeconomic impacts and communication and dissemination.

PROSPEREAU: a financial and prospective analysis tool available to water and sanitation services

After several months of development in 2021, OiEau has just released the beta version of PROSPEREAU, its financial and prospective analysis tool for water and sanitation services. This tool was specially designed for medium-sized local authorities (from 3,000 to 50,000 subscribers) looking to explore the impact of significant change (changes in scope, investment

programme, etc.) on the financial situation of their water and sanitation service.

This tool was developed with the financial support of French Office for Biodiversity (OFB).

More information at:

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

CARIBSAN: Caribbean cooperation, for treating wastewater using processes inspired by nature



Launched in autumn 2021, CARIBSAN promotes the use of constructed wetland to treat wastewater in the Caribbean. Tested for several years now in Guadeloupe and Martinique, this solution has demonstrated its effectiveness. Inspired by natural purification capacities, constructed wetland has numerous advantages over classical sewage systems: simpler maintenance, a lower construction cost for small local authorities and greater resilience to natural hazards such as cyclones.

The Martinique Water Office (ODE) the project's leader and OiEau is its main operator. The partners are the Guadeloupe ODE, the National Research Institute for Agriculture, Food and the Environment (INRAE) and water and sanitation stakeholders from Cuba (INRH), St. Lucia (WASCO) and the Dominica (DOWASCO).

An initial mission took place in late January 2022 to Dominica, St. Lucia and Martinique. It enabled constructed wetland sites to be identified and culminated in a visit to the Taupinière pilot station

in Diamant in Martinique, which treats wastewater using constructed wetland.

The three key missions of the CARIBSAN project are to conduct prior studies to determine location sites and identify the most suitable local plants; to train water and sanitation stakeholders in the Caribbean; to share experiences and raise awareness on the challenges of sanitation.



“We hope that this project will help us consider alternatives for wastewater management in the Caribbean region.”

Mr JEAN,
Executive Director - Caribbean
Water and Sewerage
Association (CAWASA)

“We are delighted to have the opportunity to learn from the experience of the other islands. We know that there have been pilot projects on sanitation in Martinique and Guadeloupe, and even in St. Lucia and Cuba. CARIBSAN is an opportunity to learn from one another and work together.”

Mr WILLIAMS,
Chief Engineer - Dominica Water and Sewerage
Company Limited (DOWASCO)

OiEau bounced back after a particularly difficult year in 2020.

Thanks to the resumption of its activities and improved cost control, the association ended 2021 in positive territory, posting a net result of €168K for a turnover still down by 15% compared to 2019.

As a result, we will be able to resume now-critical investments in our teaching facilities and buildings, in order to maintain the highest possible quality standards in our training activities and services.

€13.5M

IN REVENUE FROM ACTIVITIES IN 2021
+12% COMPARED TO 2020

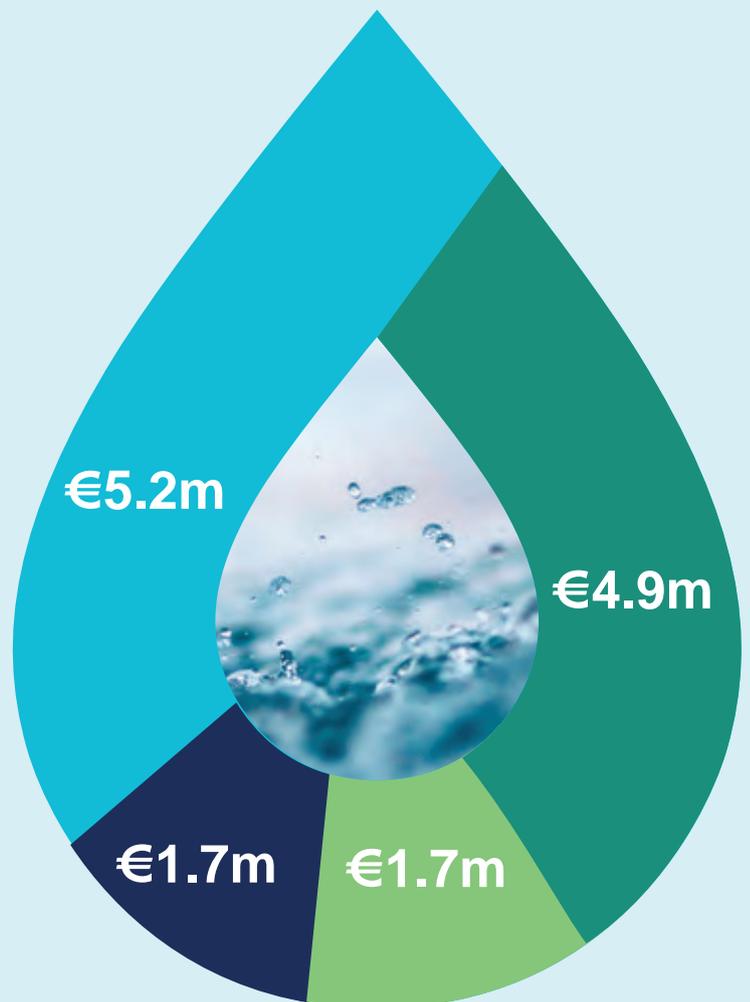
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EMPLOYEES
(FIXED-TERM AND PERMANENT)

Statutory missions

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

- Educational Training and Engineering (ETE)
- Data, Knowledge and Information Systems (DKIS)
- Facilitation of Stakeholders' Networks (FSN)
- Technical and Institutional Support (TIS)



The main revenue families

OiEau's revenue from activities can also be broken down into the main accounting families. This makes it possible to see the proportion of **subsidies** and also the breakdown of commercial revenue between **France** and **the rest of the world** (according to the nationality of the backer):



Major expense items

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

| | 2020 | 2021 |
|----------------------------|--------------|--------------|
| Payroll | 66.9% | 61.6% |
| Purchases | 29.6% | 27.7% |
| Deprec. & Prov. | 6% | 6.1% |
| Taxes | 3.4% | 3.2% |

Challenges

The 2021 financial year saw the association restore its financial equilibrium. Despite a turbulent start to the year, operating revenues returned to an upward trajectory. This trend, coupled with effective cost control, enabled OiEau to post a positive net result of €168K, without having to lay off any staff.

Unless global conditions deteriorate, early projections for 2022 point to growth in operating revenues and a positive net result.

The association must now:

- restore a level of profitability that allows it to continue to invest in its production tools (technical platforms, digitisation of certain actions, remote project management, etc.)
- continue to diversify its activities and customers in light of reduced public funding
- recruit new, highly skilled human resources in order to respond to the latest developments and new needs in the water sector.

PERSPECTIVES

Review of the 9th World Water Forum

Dakar (Senegal), 21–26 March 2022

OiEau, which has a team acting as the Permanent Technical Secretariat for the International Network of Basin Organizations (INBO), was heavily involved in organising the World Water Forum – an event that drew more than 8,000 attendees from across the globe.

Through close to 30 sessions, OiEau and the INBO addressed challenges and solutions in the areas of training, data- and information-sharing, and international and cross-border cooperation.

They also called for the acceleration of actions in three priority areas for achievement of the Sustainable Development Goals (SDGs):

- Climate change adaptation, with the “Initiative Dakar 2022” label awarded to the “100 Water and Climate Projects for Africa” project incubation initiative.
- Biodiversity conservation, with the promotion of the Water and Nature Declaration alongside the World Water Council and The Nature Conservancy (more than 75 signatories from 25 countries).
- Integrated water resources management (IWRM), with a high-level political segment dedicated to basins and the launch (with OMVS*, OMVG**, UNECE and the Swiss Confederation) of the Dakar Action Plan for River, Lake and Aquifer Basins (75 signatories from 45 countries).

These initiatives will feature at the UN 2023 Water Conference (March 2023).

* Senegal River Basin Development Organisation

** Gambia River Basin Development Organisation

“The 9th World Water Forum was a moment of consecration for the water community. Its ambition was to expand the conversation beyond internal experts and to look outwards, including local authorities and users, through an inclusive approach. Thanks to the work of OiEau members, the Forum included a “Basin segment” for the first time in its history, which made it possible to gauge the extent to which stakeholders are committed to promoting the water management approach at the basin level. We must now step up our efforts to champion this approach, which is essential in safeguarding access to water and preserving ecosystems. Its benefit is that it unites stakeholders around common themes, fostering dialogue and exchange in addressing future challenges.”

Mr Semega, High-Commissioner - OMVS

30 
sessions

1500 
attendees

2 
declarations

150 
signatories

France: OiEau puts its expertise to work to address water scarcity

OiEau is expanding its expertise on the impacts of climate change, and water scarcity in particular, in order to support decision-making bodies in the water and aquatic environment conservation sectors.

OiEau coordinates and publishes monthly hydrological status bulletins for mainland France. By monitoring changes in water resource availability in this way, it captures drought trends in different regions of the country. These bulletins are coordinated as part of a partnership with Météo France, the Office of Geological and Mining Research (BRGM), the Central Hydrometeorology and Flood Forecasting Support Office (SCHAPI), the Ministry of Ecological Transition, the French Office for Biodiversity (OFB), French Waterways (VNF) and the Regional Directorates of Environment, Land Settlement and Housing (DREALs) for river basins.

This routine monitoring helps decision-making bodies in the water sector implement the regulatory tools at their disposal, such as publishing “drought” decrees in line with local circumstances and developments.

As a way to look deeper into these issues and their consequences, OiEau is conducting an exploratory study on the “Resilience capacity of fish in rivers facing water scarcity”, with support from the OFB.

A bibliography and literature review has provided an overview of available knowledge on this issue globally. Water scarcity, whether associated with natural hydrological drought or exacerbated by anthropogenic pressures, produces effects at the individual, community and ecosystem levels. These short- or long-term effects can build or erode the resilience of freshwater fish. Repeated water scarcity events lead to limited resistance and resilience among fish species.

A bibliographic analysis of the selected scientific articles indicates an increase in the number of articles on the issue of water scarcity since 2013, which can be attributed to growing interest in this subject among the scientific community following climate conferences. This increase coincides with the onset of droughts in several countries United States, Australia and Portugal between 2000 and 2010. Very few of the articles on this topic come from the French scientific community. This finding stems from the decision to focus on the scientific literature, which does not include reports and studies of a more technical or territorial nature.

This exploratory study marks a first step supporting decision-making in order to improve the living conditions of the worst-affected fish populations during these critical water scarcity episodes. By shining a spotlight on the lack of articles relating to France, the study could prompt further scientific research on this issue.

PERSPECTIVES

Water & Biodiversity: closely connected issues

Aquatic and wetland environments encompass a wide variety of ecosystems around the world and serve as permanent or temporary habitats for thousands of species of animals, plants, fungi and micro-organisms.

The importance of these environments for global biodiversity has long been known. For instance, the 1971 Ramsar Convention recognises the importance of the world's major wetlands for migratory bird populations.

What is biodiversity?

According to the Convention on Biological Biodiversity, which was adopted at the Earth Summit in Rio de Janeiro in 1992, biodiversity refers to the variability among living organisms at all levels, including the variety of ecosystems and landscapes, the diversity of living species and genetic diversity within species. It also encompasses multiple flows,

since biodiversity is not static but instead consists of permanent exchanges between organisms and their environments.

Action on this front is framed by instruments at three levels:

- The international level, with the Ramsar Convention (1971), the Convention on Biological Diversity (1992), the 20 Aichi Biodiversity Targets (2010) and the Sustainable Development Goals (2015).
- The EU level, with the Nature Directives (Birds Directive of 1979 and Habitats Directive of 1992), the Water Framework Directive (2000) (which placed aquatic biodiversity at the heart of ecological status assessment) and the Biodiversity Strategy for 2030.
- The national level, with the second national Biodiversity strategy 2011–2020, the law on water and aquatic environments (2006), the Biodiversity law (2016) and the National Biodiversity Strategy 2030 (2022).

Questions for:



Mr Dubreuil

Director General, French Biodiversity Agency (OFB)

Why is improving water management considered crucial in environment and biodiversity conservation? How does the National Biodiversity Strategy 2030 stress the importance of incorporating water-related issues?

Aquatic environments face the same pressures as other ecosystems (changes of use, pollution, exploitation of living organisms, climate change, introduction of invasive alien species). They play an essential role for all living organisms, but they are the least well-conserved of all ecosystems assessed in France. The water policy includes measures and actions on governance, planning, taxation and oversight. The National Biodiversity Strategy 2030 further strengthens these measures by affirming the principles of responsibility, synergy with climate action and the incorporation of biodiversity into all policies.

How do you intend to strengthen your ties with the water sector, both nationally and internationally?

The OFB provides expertise on water management within river basins and to water and sanitation utility authorities. Biodiversity and climate are becoming more prominent issues in debates on water management. I would like to see the OFB champion these issues nationally and internationally, particularly with the support of partners such as OiEau. This will involve implementing nature-based solutions and ensuring that businesses and local authorities better incorporate water, biodiversity and climate issues into their thinking.





Mrs Erickson

Managing Director for Water Security, The Nature Conservancy (TNC)



Nature-Based Solutions (NBS) are expected to play an increasingly important role in helping our societies adapt to the consequences of climate change for natural risk management, health, water supply and food security. In your view, how can managers and water stakeholders be persuaded to incorporate NBS into their actions?

Those of us who work in environmental conservation have long recognised the power of nature to address some of society’s most formidable challenges.

The hardest part, of course, is incorporating this knowledge into mainstream thinking and persuading decision-makers around the world that nature can, and should, be a key part of the solution.

One of the best things we can do to promote the adoption of Nature-Based Solutions in the water sector is to demonstrate unequivocally that protecting our upstream catchment basins, reforesting degraded landscapes, implementing sustainable farming practices and similar efforts can help water managers achieve their business goals in a profitable way, especially in light of climate change.

For instance, a profitability analysis carried out for the Quito Water Fund, TNC’s first water-related fund, showed that a local municipal water distribution company could recoup \$2.15 in future operating costs for every \$1 invested in NBS in this key catchment basin. Twenty years later, the water fund is still going strong. There are similar stories with other water funds across the globe.

Investing in nature is the right thing to do, and it also makes good business sense. Now, it’s our job to prove it.

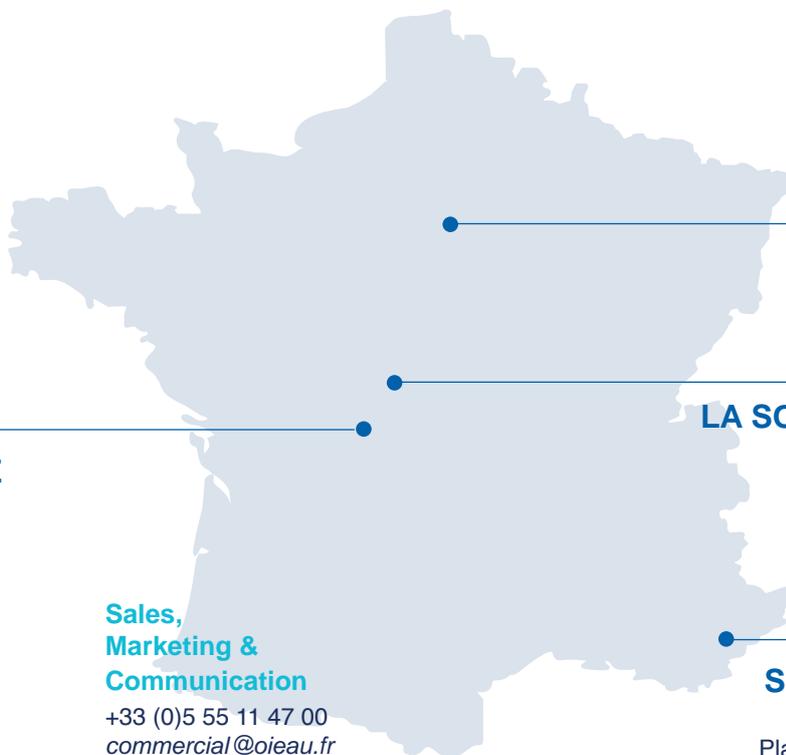
The World Water Forum stressed the importance of accelerating the implementation of NBS in the water sector through the “No water security without ecological security. No ecological security without water security” initiative. How could mobilising signatories to this initiative make a practical difference in terms of better incorporating NBS into public policies?

The Declaration adopted at the World Water Forum successfully united water sector stakeholders. It already has 75 signatories, including environmental NGOs such as The Nature Conservancy, private companies from the water sector, civil society organisations and government agencies from around the world. This is exactly the kind of unity we need to move things forward. It was astonishing to see such a positive response to this initiative, but we’ve really only scratched the surface. I’m looking forward to seeing the momentum continue to build ahead of upcoming events such as the COP27 climate change conference and the UN Water Conference, where the stakes will be even higher. Our goal is to embed the key concept that ecological integrity and water security are interdependent: we cannot have one without the other. And it’s not too late to sign.



Read the Declaration here:

<https://bit.ly/3b7RJs1>



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