



2022  
Environmental, Social  
and Governance Report

Antea Group

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## 2022 Environmental, Social and Governance Report

### Environmental, Social and Governance Report

Antea Group France - June 2023

Thank you to the many employees who participated in the drafting of this Antea Group France ESG report. Comments and suggestions are welcome and can be sent to [RSE@anteagroup.fr](mailto:RSE@anteagroup.fr)



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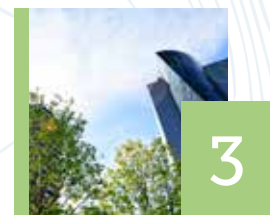
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**Pascal VOYEAU**  
*Managing Director  
Antea Group France*

Climate change is increasingly visible and evident every day

2022, the hottest year ever recorded in France since the beginning of the 20th century, will have been that of all records. The few extra degrees now result in droughts, fires, intense and devastating rainfall, ground movements, etc., and unfortunately we have undoubtedly not seen the end of it.

The men and women of Antea Group have made these challenges their business, understanding and mitigating the impacts of global warming, as well as working on the resilience of territories and of human activities. Whether they are geotechnical engineers, hydrogeologists, hydraulic engineers, specialists in sanitation or pollution treatment, experts in environmental data processing or risk assessment, all our specialists are mobilized in metropolitan France, overseas territories and internationally to help clients cope with these new challenges.

In 2022 we continued to strengthen and diversify our expertise. Digital technology is also a powerful lever for innovation used for ecological and energy transition. To act, you need to have knowledge. We are strengthening this knowledge by welcoming the TLG Pro teams in charge of industrial and environmental monitoring.

All the women and men at Antea Group therefore appreciate the opportunity we have of being able to do our jobs as our first ESG commitment.

Over the past year, we have also given new impetus to our ESG approach by implementing our WeAct company project. Through 64 actions, we have engaged our company in a dynamic that is more innovative and more technical, more responsible and more committed, more attentive and more inclusive.

Finally, we are renewing our commitment to the United Nations Global Compact, its 10 principles and the 5 Sustainable Development Goals, for which we are especially mobilizing our efforts.

2022 has been a busy year. The following pages illustrate this with all the talent that the Antea Group teams demonstrate day to day.



**Pascal VOYEAU**  
*Managing Director  
Antea Group France*



## WeAct, Our 2021-2024 company project A SHARED VISION FOR A CO-DESIGNED PROJECT

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WeAct, Antea Group France's company project for 2021-2024, reflects who we are and what we want to evolve towards.

It is based on 3 founding pillars of our commitments and our identity, reflected in 64 actions in which everyone can find his or her place and get involved.

These actions constitute a real roadmap for the deployment of our ESG policy and our commitments in terms of well-being at work, diversity, health and safety, as well as our environmental commitments in the functioning of the company and in our engineering projects.

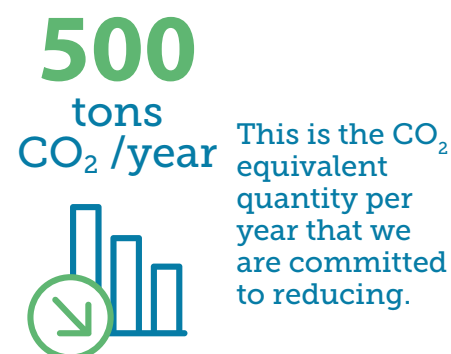
2022 has witnessed the emergence of many WeAct actions, which are recounted throughout this report.

## Focus 1 WE ARE OPEN AND COMMITTED

*Solidarity, respect and safety for everyone and respect for the environment are our values and the identity of our group. We are proud to share them and to implement them on a daily basis and in our external commitments.*

### We act towards...

- 1- A responsible commitment**
  - > Develop our commitment to the Sustainable Development Goals
  - > Support actions related to our ESG policy
  - > Support employees' initiatives for the protection of the environment and resilience to climate change
- 2- Respect and safety for all**
  - > Respect of human rights and ethics
  - > Do everything possible for everyone's safety
- 3- Welcoming and supporting all employees**
  - > Promote well-being at work and diversity
  - > Develop our welcome and integration programs
  - > Support employees in their career path
- 4- Cohesion and solidarity**
  - > Strengthen team cohesion and the sense of belonging
  - > Promote mutual aid



## Focus 2 WE ARE THE PARTNER OF CHOICE

*Our clients, businesses, and local authorities recognize us, set us apart, choose us and place their trust on the long term. We support them in taking their environmental challenges into account, in France and around the world.*

### We act towards...

- 1- The quality of the client relationship**
  - > Prioritize the quality of the client relationship
  - > Build loyalty
  - > Co-build innovative projects
- 2- The quality of our services**
  - > Guarantee adapted solutions
  - > Produce services and deliverables adapted to the specific project features
  - > Anticipate the needs of our clients
- 3- Visibility and recognition of our expertise**
  - > Rely on our technical skills and our expertise to develop our reputation
  - > Invest in social networks
- 4- International development**
  - > Develop our international activities in the private sector
  - > Encourage our teams to go international
  - > Expand our services to new regions of the world



The well-being and satisfaction of all our employees are the objectives that we set ourselves.



Artificial intelligence, geo-referencing, integrated database, etc.

A vocabulary that is increasingly characterizing our business processes and which we are getting used to!

## Focus 3 WE ARE STAKEHOLDERS OF A SUSTAINABLE AND VIRTUOUS FUTURE

*Our multiple skills, our technical excellence, our innovative solutions and our powerful digital tools enable us to design sustainable, resource-efficient facilities in the service of the resilience of regions and of business activities faced with climate extremes.*

### We act towards...

- 1- Excellence in engineering and offering multiple skills**
  - > Deploy our technically differentiating expertise
  - > Promote multi-disciplinarity
  - > Develop the innovation dynamic
- 2- Sustainable facilities**
  - > Design solutions making it possible to control impacts and preserve resources
  - > Work towards resilience to climate extremes
- 3- Powerful digital tools**
  - > Accelerate our digital transformation
  - > Develop innovative solutions for environmental data







Find the description of the SDGs on pages 58/59



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## Principle 1

Promote and comply with the protection of International Human Rights Law

## Principle 2

Ensure we are not complicit in Human Rights violations

## Principle 10

Take action against corruption in all its forms, including extortion and bribery

# Human Rights and Ethics

The United Nations' Universal Declaration of Human Rights and the Charter of Fundamental Rights of the European Union are integral parts of Antea Group's values. Our code of ethics makes it possible to fight against all corruption, influence peddling, illicit agreements, favoritism or conflicts of interest.

Our human rights commitments 11

Our commitments in terms of respect for ethics and professional conduct 12

We support the mission of the United Nations Global Compact to:

MOBILIZE A MOVEMENT OF RESPONSIBLE COMPANIES AND ECONOMIC STAKEHOLDERS TO BUILD THE WORLD WE WANT TOGETHER



# 1.1

## Our Human Rights commitments

As the official local contact of the United Nations Global Compact, Global Compact France brings together more than a thousand companies and organizations around issues related to ESG and sustainable development. Global Compact offers its members a voluntary commitment framework built on 10 principles to be complied with in terms of human rights, labor law, the environment, and the fight against corruption. It is also mandated by the UN to support the implementation of Agenda 2030 and adoption of the Sustainable Development Goals by the French business community.

**Antea Group France has supported the Global Compact since June 18, 2003.**

The first 2 principles of the Global Compact are about Human Rights.

The United Nations Universal Declaration of Human Rights of December 10, 1948, and the Charter of Fundamental Rights of the European Union of December 18, 2000, are integral parts of Antea Group's values. The group defends the indivisible and universal values stemming from these texts, such as dignity, equality, solidarity, citizenship, and justice.

These values are found in every aspect of the functioning of the company, particularly in our management of Human Resources – no discrimination in hiring, diversity, gender equality (see page 16) – and in the application of our code of ethics in the exercise of our activities (see following page).

In addition, we ensure that the selection of our suppliers and subcontractors meet our requirements in terms of respect for Human Rights, legislation on labor rights and the environment. To do this, all of our suppliers are automatically assessed as required according to HSQE (Health Safety Quality Environment) criteria. Audits of our main partners are carried out annually by our network of HSQE representatives.



## Our commitments in terms of respect for ethics and professional conduct

Strengthening regulations for the fight against corruption and influence peddling constitutes a major challenge for our group, which is developing in France and internationally in highly complex and very competitive environmental engineering markets.

In 2020, Antea Group actively deployed its code of ethics to all employees and stakeholders. It is available to everyone on our website <https://www.anteagroup.fr/charte-ethique>.

The Antea France and IRH Ingénieur Conseil code of ethics is a structuring element in our method of operating and enlightens the principles that drive us. It defines the rules of individual and collective conduct which must guide our actions and inspire our daily choices in accordance with our values and commitments. This simple and concise document shows the areas where we are vigilant as well as our commitments in business conduct. This code is intended for Antea Group teams, as well as its partners, suppliers, and subcontractors.

The constant application of this code and its operating commitments allow us to be recognized in the market as a company of exemplary integrity.

In order to ensure perfect knowledge of these rules and their application by all of our employees, we prepared an e-learning training and evaluation course dedicated to the code of ethics. 733 employees carried out the first training session. It took place from December 1, 2021 to February 25, 2022. The assessment carried out in 2022 as part of the review of our anti-corruption system led us to identify some areas for progress in certain training modules. They will be deployed in 2023.

Any new employee joining the Group is systematically enrolled in ethics training. This provision also concerns work-study students and interns. We have drawn up a procedure for managing internal alerts which was communicated to all of our employees in December 2022. Finally, we have defined a method adapted to our risk mapping for the assessment of third parties (clients, suppliers, partners, etc.). It will thus be implemented in 2023.

Our Ethics Officer ([ethique@anteagroup.fr](mailto:ethique@anteagroup.fr)) is available to everyone to answer all questions relating to the fight against corruption, influence peddling, unlawful agreements, favoritism, and conflicts of interest.



In the code of ethics, we set out four commitments:

- 01 We refuse all forms of corruption or influence peddling;
- 02 We give our opinions as engineers & consultants in compliance with professional codes of conduct;
- 03 We reject unlawful agreements and favoritism;
- 04 We are vigilant in preventing conflict-of-interest situations.

# 2



## Principle 3

Respect freedom of association and recognize the right to collective bargaining

## Principle 4

Contribute to the elimination of all forms of forced or compulsory labor

## Principle 5

Contribute to the effective abolition of child labor

## Principle 6

Contribute to the elimination of all discrimination in employment and professions

## Working conditions: diversity, health, safety



Find the description of the SDGs on pages 58/59

Our employees are at the heart of our ESG approach. It applies to working conditions, the fight against discrimination, social dialogue, human capital development, diversity, health, and safety at work.

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Cohesion, health, and well-being at work	19
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## 2.1 Diversity and non-discrimination

In France, Antea Group has a rich history, with roots dating back to the 1950s. Today, Antea Group is an international environmental engineering and consulting company, with more than 3,200 employees worldwide, and a parent company in the Netherlands.

In France, Antea Group is made up of three legal entities: Antea France and its subsidiaries IRH Ingénieur Conseil and TLG Pro. Antea Group brings together multidisciplinary experts and consultants working in the fields of the environment, water, infrastructure, and environmental data management. Our French teams, made up of more than 900 employees and spread over 25 offices in metropolitan France and 5 in French overseas departments, work in the heart of territories alongside local stakeholders in France and internationally.



Beyond these indexes, our ChooseMyCompany HappyIndex® AtWork survey carried out in September 2022 among all employees kept us in the TOP25 of companies with more than 500 employees where women are the most satisfied out of a total of 587 companies that took part in the same survey.



### Actions with seniors

We will continue to assist our employees who wish to prepare for their retirement, either by flexible working hours or by training in preparation for retirement.

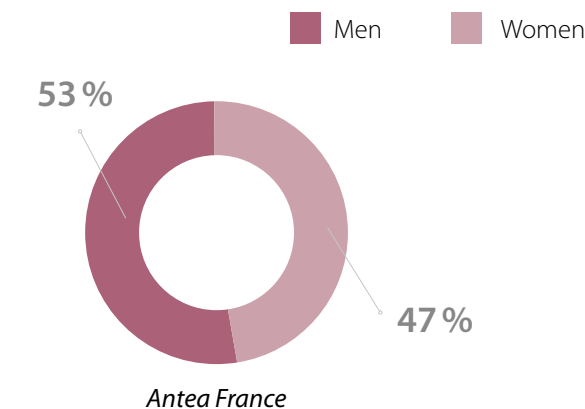
This commitment has enabled us to obtain another distinction from **ChooseMyCompany**. In its **HappyIndex® AtWork** ranking of companies with more than 500 employees, where those aged 47+ are "the happiest and most committed", Antea Group was ranked 15th out of 587 companies consulted.



Source: HappyIndex®AtWork 2022 survey of 587 companies in the +500 employees category. These rankings reflect the average rate of favorable opinions given during the HappyIndex®AtWork survey by our employees in the populations considered. The HappyIndex®AtWork survey was carried out in September 2022. It allows employees to give their opinion on the company through 6 topics: professional development, management, pride, work environment, salary and recognition, pleasure.



### Men/Women workforce ratio



Our recruitment practices reflect our commitment to gender parity:

	2021	2022
New recruits	134	129
Young recruits* among the new recruits	58 of which 50% are women	50 of which 50% are women
Work-study contracts	24 of which 54% are women	42 of which 52% are women
Interns	133 of which 47% are women	115 of which 46% are women

\* Young recruits: graduates leaving educational institutions without initial professional experience excluding internships and work-study contracts

### Gender Equality Index



77  
Antea France

74

IRH Ingénieur Conseil

### Workforce at the end of 2022\*



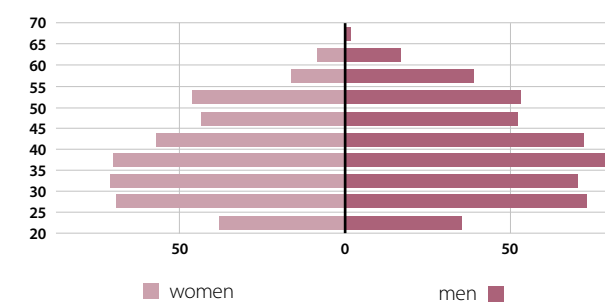
664  
Antea France

247

IRH Ingénieur Conseil

\* excluding employment contracts suspended for a long time, work-study contracts, and internships

### Age structure



Antea Group France  
31/12/2022



# Integration and support for young people

## Antea Group continues to strive for the professional integration of young people.

In 2022, we hired on permanent contracts 43 interns and work-study students at the end of their contracts, i.e., 33% of our recruits (see indicators on previous page).

In order to anticipate our future recruiting, we welcomed 115 interns and 42 work-study students in 2022.

For all these young people for whom Antea Group is often the first professional experience, but also for any new recruit, it is essential to have benchmarks and key information from the first days, beyond just the support of the manager and colleagues.

This is why our partly digitized integration course is constantly being improved. In 2022, we notably added new modules on cybersecurity.

In addition, mobility gateways are set up in the company, but they were not always well known, both among young employees and young managers. A presentation of these gateways is now available for employees, who can thus better understand the company's mobility policy and discover career opportunities.

# Disability support

In 2022, two employees received support from our disability representative for the reorganization of their workstation.



# Fight against sexual harassment and sexist conduct

In 2022, we continued actions to raise awareness in order to combat and prevent any sexual harassment and sexist conduct in the workplace. For example, cartoons have made it possible to illustrate scenarios of situations featuring sexist conduct which we may face in our jobs (in particular on works sites).



## 2.2 Cohesion, health and well-being at work

Over the past 3 years, many transformations have taken place within Antea Group France. While we have been able to adapt to the health crisis in 2020 and 2021, namely with the development of remote working, we have also experienced strong growth of our activities and of our teams. With more than 100 new employees between the end of 2020 and the end of 2022, it was essential to elaborate initiatives promoting team cohesion and the quality of life at work. It is a whole range of actions and levers that make it possible to establish a satisfactory working environment for all.

## Well-being and cohesion activities

In 2022, we made weekly **well-being workshops** available to employees. Lasting thirty minutes, these videoconferencing-based workshops allow you to take time for yourself and participate in a wide variety of activities - relaxation, back exercises, meditation, self-massage, etc. - which can contribute to the well-being of our employees. In June, the **30 offices of Antea Group France**, in metropolitan France and overseas, had a **team-building** session. The activities were diverse with rally driving, Olympiad, an escape game, and even paragliding for some. All led to the same priceless result: special fun moments among colleagues, outside the usual setting, which encouraged meetings, strengthened ties and united teams.





In addition, it was important to us to offer the employees who wanted it the chance to take part in **the same run**. Run For Planet is a great sporting challenge, accessible to all with several versions: 5 km of non-timed running or walking, 10 km of timed running, and a connected version to be done during a given period. Huge numbers signed up, with 373 registrations, i.e., more than 40% of our employees, in metropolitan France and overseas. Nearly 3,300 km were covered if everyone's performance is combined. Part of our registration fees made it possible to support the Planète Urgence association, which works to preserve forests.

Soft mobility

After the success in 2021, Antea Group again participated in the **'Au boulot à vélo'** (cycling to work) challenge in 2022, organized by the CADR67 in partnership with the Eurometropolis of Strasbourg. This event aims to encourage the use of bicycles on commutes and work journeys.

In total, 227 Antea Group employees took their bicycles and covered 30,460 km in June to get to work.

To reward participants, Antea Group sponsored two beehives located not far from our offices in Auvergne-Rhône-Alpes and Ile-de-France, and personalized pots of honey were distributed with the association 'Car elles butinent' which supports sustainable beekeeping.



"Vis ma vie" (Live my Life) program

The new "Vis ma vie" program set up within the company in 2022 has enabled 40 people to discover another job. The objective is to promote understanding and exchanges between the different units, to develop the multi-departmental approach on projects, and to enable employees to broaden their experience alongside other teams.

40 employees were able to discover the daily life of a colleague from another field of activity for 5 days. Everyone agrees that the experience was enriching both on a human level and in terms of knowledge of the organization and jobs.







## Remote working and part-time work: flexible organization

In order to facilitate a better work-life balance, Antea Group offers a range of part-time arrangements as well as the possibility of remote working thanks to our company agreements.

We analyze each mobility request to try to best support the life projects of our employees. In 2022, there were 17 geographical transfers and 9 career changes.



Number of employees benefiting from a remote working amendment at the end of 2022

359

## Motivation and commitment of our teams

**ChooseMyCompany's HappyIndex® AtWork** survey looks into the motivation and commitment of our teams. Based on six themes -professional development, management, pride, work environment, salary and recognition, pleasure- it allows employees to express their feelings and what is important to them at work.

For the second consecutive year, we have obtained the **HappyIndex® AtWork** label awarded to the most exemplary companies in terms of well-being at work.

This survey allows us to assess the satisfaction of our employees and identify areas for improvement.

Beyond the positive overall results, Antea Group obtained 5th place in the ranking of companies with more than 500 employees where employees find the most meaning in their work. This is a great source of pride and a valuable asset for Antea Group.



## Employee dialogue & support

Our active support platform, set up in 2018, is always promoted and recommended by management, peers and human resources when the slightest issue is detected.

The increase in the number of platform users and interviews/contacts in 2022 compared to 2021 is more the result of promoting the platform to employees than a real increase in problems. In any case, the supervising teams remain vigilant when an issue is reported.



6 8

2021 2022

Number of users of the psychological helpline and support platform



20 29

2021 2022

Number of interviews and contacts

Participation rate

58 % vs 50 %

Overall grade

4,01/5 vs 3,81 /5



Recommendation rate

74,1 % vs 60 %  
Threshold to obtain the HappyIndex® AtWork label



Results of the ChooseMyCompany survey of Antea Group employees (Sep. 2022)



8 6

2021 2022

Agreements signed with employee representatives





## 2.3 Safety

### Our Health, Safety, Quality and Environment Management System

Our national HSQE policy is based on the following 5 essential commitments:

- 01 To provide high-level technical services with real added value for our clients**
- 02 To comply with our commitments in terms of deadlines**
- 03 To work on the development of innovative solutions, both from a technical and organizational point of view**
- 04 To improve the quality of life at work for our teams**

#### **05 To be a responsible and exemplary company in terms of ethics, quality, health, safety and environmental protection**

To deploy this policy, improve our overall performances and provide a solid basis for initiatives that will ensure our development and sustainability, we have chosen to rely on an integrated Health, Safety, Quality and Environment (HSQE) management system which, depending on our activities, complies with the following standards:



The OPQIBI qualifications (Engineering Qualification Body) validate the expertise and the experience of our engineers. We have about sixty qualifications, including several with the Reconnu Garant de l'Environnement label (Recognized Guarantor of the Environment), which highlights activities promoting renewable energies.



MASE is the standard among industrial stakeholders for the health and safety management of stakeholder personnel as well as their management of environmental impacts.

#### LNE SSP

The LNE SSP certification (National Laboratory of Metrology and Testing Polluted Soils and Sites) based on the NFX 31-620 standards judges the quality and conformity of services relating to polluted sites and soils. The areas cover diagnoses, decontamination engineering including pilots and remediation works, as well as regulatory certificates.

#### COFRAC

The Measurements Business Unit of IRH Ingénieur Conseil is accredited by Cofrac for part of its services:

- water and air emission sampling, measurement and control,
- control of occupational exposure to chemical agents in the workplace. Cofrac Test Accreditations, no. 1-1767, 1-2460, 1-2461, 1-2462 and 1-2476, list of sites and scopes available on [www.cofrac.fr](http://www.cofrac.fr)



The CEFRI-E certification reference system specifies the organizational arrangements to be adopted by companies employing category A or B personnel working in nuclear installations.



The International Export Department of Antea France has been assessed as compliant with the requirements of the ISO 9001 v2015 standard relating to Quality management.



Antea France is registered by the Labor Division, Occupational Health and Safety Department of the Ile-de-France Regional and Interdepartmental Department of the Economy, Employment, Work and Solidarity (DRIETS) for the Environment team which acts as occupational risk prevention advisor for clients in the industrial and office real estate sectors.

#### Dikes and Dams accreditation

Antea France has the Dikes and Dams accreditation issued by the French Ministry of Ecological and Solidarity Transition, for our ability to carry out studies, surveys as well as monitoring of works relating to the safety of hydraulic structures as well as Class C dams and dikes.



EcoVadis, a corporate ESG rating company, awarded the silver medal to Antea Group France. It is the result of the evaluation of the actions carried out by the company in terms of respect for the environment, employment-related matters and human rights, ethics and responsible purchasing.



Antea Group is accredited by the CDP, a global non-profit environmental organization, to assess companies and investors wishing to benefit from an environmental rating in the water sector.



Antea Group is a member of the Alliance for Water Stewardship (AWS), in which companies, NGOs and public stakeholders collaborate and which encourages water stewardship by certifying production sites according to the international AWS standard.



Antea Group's Senior Management has always stated its commitment to implementing a **high-performance HSQE culture and system**, shared by all and at all levels. Health and safety at work must be part of a prevention approach in which the company and the employees play a role. Our HSQE commitment is based on strong elements:

- **A recognized HSQE system since 2006** – formerly organized and certified at a regional level, in 2021 Antea France chose to commit to a single national MASE certificate, covering its 4 business lines. In autumn 2022, the Antea France teams were subject, for a second consecutive year, to a national MASE renewal audit. At the end of this audit, the MASE Committee renewed its confidence in us by certifying Antea France for a period of 3 years. The HSQE actions carried out throughout the year thus made it possible to strengthen our collective functioning and our HSQE culture.
- **A recognized commitment:** participation in the UPDS\* Health & Safety Committee

- An HSQE system based on everyone's contributions: **572 HSQE reports in 2022**
- An HSE network of **6 HSQE facilitators and 30 local correspondents** close to employees
- **252 HSQE events** (discussion meetings on a given HSQE topic, Health-Safety awareness-raising communications or HSQE news flashes)
- **Managed risks**, with an accident rate that is changing little, and severity rates which remain below the rate for the profession. IRH Ingénieur Conseil's frequency rate of (22.05) is higher than that of Antea France (4.61) due to a number of accidents with work stoppage which is nearly twice as high at IRH Ingénieur Conseil (9 versus 5) and a lower number of hours worked (ratio of 2.65), with the workforce being lower. The teams remain mobilized to reduce accidents and risks as much as possible.

*\* Union of Site Decontamination Professionals*

		2022	2021 profession rate
Antea France	Frequency rate	4.61	3.90
	Severity rate	0.06	0.30
IRH Ingénieur Conseil	Frequency rate	22.05	3.90
	Severity rate	0.20	0.30

Frequency rate: number of accidents with work stoppage of more than one day, per million working hours  
Severity rate: number of days compensated for, for 1,000 hours worked

IRH Ingénieur Conseil committed to the MASE certification process

In accordance with the objectives of our WeAct company project, a MASE certification process for all the activities of our subsidiary IRH Ingénieur Conseil has been initiated. The target objective is ambitious: to bring IRH Ingénieur Conseil up to the same HSE level as that of Antea France which has benefited from an HSE culture for more than 10 years. This process will make it possible to:

- reinforce the HSE culture within teams;
- adopt the same language in terms of Health, Safety and the Environment;
- provide regularity in our HSE procedures with the application of good HSE practices;
- ensure the safety of our services in the field;
- promote and respect human and environmental values.

The 5 internal audits carried out in 2022 on the IRH Ingénieur Conseil sites in Ploemeur, Beaucouzé, Toulouse, Sérézin-du-Rhône, and Colmar allowed us to:

- identify areas for improvement with regard to our own requirements and those of the MASE standard;
- define the actions to be implemented to progress from here to the initial certification audit.



Adaptation and intensification of HSQE events

2022 was marked by the deployment of a new format for HSQE discussions and events, through awareness-raising and talks on our "part.AG" e-learning platform. Namely, two Safety topics that are relevant to the four business lines were developed:

- a national talk on “**Interventions and working at height**” organized over a week and bringing together **201 employees**;
- a national talk on the theme “**Working alone**”, over a week, with **477 employees**.

E-learning is also implemented for the **Safety welcoming for all new recruits** (permanent contracts, fixed-term

contracts, internships, work-study contracts, etc.). It makes it possible to assess the HSE culture of new employees using an interactive questionnaire and to guarantee the proper implementation of the Safety welcoming in the week following the arrival of the new recruit.

In 2023, this e-learning format will be used for enhanced training, with the creation of various modules related to the activities of our business lines (for example modules to explain in detail HSE guidelines and procedures, or videos devoted to the implementation of specific Personal Protective Equipment (PPE), etc.).

HSE training on the rise



In order to better identify dangerous situations in the context of our projects in the field (or even in the office), a larger number of employees were trained as workplace first-aiders in 2022. This encourages them, on the one hand, to participate more in the implementation of prevention actions and, on the other hand, to pass on more easily the HSE information within their team. Finally, 90 volunteers have been made aware of the dangers of fire and the use of safety resources (handling of a fire extinguisher, triggering the fire alarm, etc.).

	Number of learners	Hours
Initial first-aid training	37	592
First-aid retraining	81	648
Fire training	90	300

New Health, Safety and Environment guidelines

Our HSQE management system was strengthened throughout 2022 thanks to the development of new HSE guidelines, in particular for:

- **Fauna/Flora risk management during site visits:** this new HSE guideline was established on the basis of HSE feedback indicating dangerous situations linked to fauna (presence of a snake on the site of a storage facility for waste or swarms of wasps in piezometers) and flora (allergic reaction following contact with a stinging plant during sampling);
- **asbestos risk management on ‘sub-section 4’** \* **asbestos works site:** in addition to demolition/asbestos removal/lead removal project management operations subject to ‘sub-section 3’\*, certain activities at Antea Group may present a risk of exposure to asbestos and the need to intervene pursuant to sub-section 4; for these cases, the guideline presents the general principles of

prevention and protection, as well as the methodology for taking samples in the presence of materials (or products) containing asbestos;

- **the management of waste on site** to make employees aware of sorting and remind them of our obligations with regard to the sorting of hazardous waste (paint aerosols, activated carbon, samples of polluted soil, soiled PPE, etc.).

Finally, our ‘**Managing accidents and incidents**’ HSE procedure was updated in September 2022 based on feedback from employees who have had to deal with an accident at work, as well as from HSQE business coordinators contributing to the analysis of causes. The changes made were done in consultation with the human resources department. The latest version was presented and validated by the HSWC (Health, Safety, Working Conditions) Committee.

\* sub-sections 3 and 4: categories of “asbestos” sites according to the activity to be carried out:  
• sub-section 3 concerns the removal or containment of materials containing asbestos;  
• sub-section 4 concerns maintenance, repair, or servicing operations.





Find the description of the SDGs on pages 58/59



## Principle 7

Apply a precautionary approach to environmental issues

## Principle 8

Take initiatives to promote greater environmental responsibility

## Our environmental commitments in the operation of the company

Our environmental commitments are led by all the women and men working within Antea Group. We are therefore motivated and driven to work every day to improve our performance in this area.

Antea Group Bilan Carbone® (carbon footprint)	31
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Commitment to a sustainable and virtuous future	39





*In 2022, the overall involvement of employees and the investments made in our offices made it possible to avoid a significant volume of GHG emissions. Our energy consumption in 2022 decreased by 13% compared to 2019, to a level similar to that of 2020.*

### 3.1

## Antea Group Bilan Carbone® (carbon footprint)

*Aware of the need to reduce its carbon footprint to tackle climate change, Management has included in Antea Group's corporate project the objective of reducing greenhouse gas (GHG) emissions both in its engineering projects and in its daily practices.*



The business of Antea Group is resolutely focused on the respect and protection of the environment, on decontamination, and on the sustainable use of natural resources. We therefore wanted to go beyond our regulatory obligation of carrying out a Greenhouse Gas Emissions Assessment (BEGES). In 2020, we carried out a carbon footprint assessment (Bilan Carbone®) using 2019 as the benchmark year. This more comprehensive approach to accounting for and reducing greenhouse gas emissions takes into account both so-called "direct" and "indirect" emissions (scopes\* 1, 2 and 3).

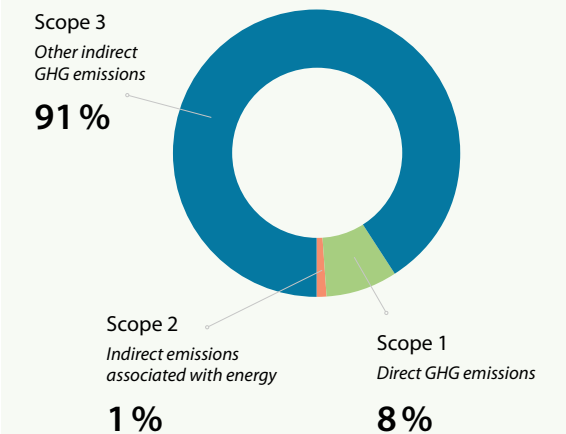
Annual CO<sub>2</sub> emission reduction targets have been calculated. To achieve them over 4 years (2020-2023), an action plan has been drawn up. Its implementation allows us to gradually reduce our CO<sub>2</sub> emissions each year in order to reach the targets set.



Overall result of our 2019 Bilan Carbone® (carbon footprint)

**12 054**  
tons of CO<sub>2</sub> equivalent

Distribution of emissions  
by scope



\* The scopes refer to the scopes within which the company's GHG emissions are studied. This makes it possible to identify the sources of the generated pollution, and thus to act to reduce them. Scope 1 is the most restricted: emissions related to fuels consumed by vehicles. Scope 2 covers emissions related to electricity consumption. Scope 3 is the broadest: emissions related to waste, business travel and commuting, etc. 91% of our GHG emissions correspond to scope 3, of which 2/3 are related to the 'Purchases of Products or Services' item

**By monitoring certain indicators described in the following pages, we can assess the progress of our action plan as well as the results. The actions are classified by major themes:**

- **energy,**
- **travel,**
- **waste,**
- **inputs & fixed assets (suppliers, IT stock)**

Our targets for reducing CO<sub>2</sub> emissions for each of these themes have been calculated on the basis of consumption specific to each item in the operation of the company.

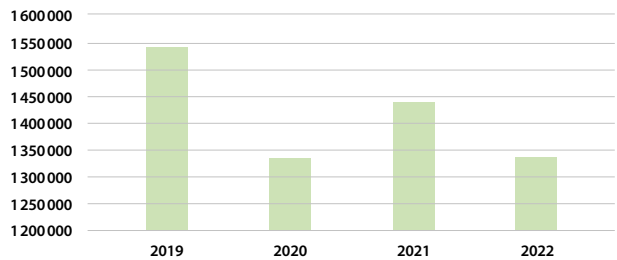
For inputs & fixed assets, with actions taking place over the long term, we do not yet have visible results. Efforts for this item, which represents 67% of our carbon impact, relate to our IT stock and the selection of our suppliers.

From 2024, a new Bilan Carbone® will have to be carried out in order to adjust our action plan and our targets.





Annual electricity consumption  
(in kWh)

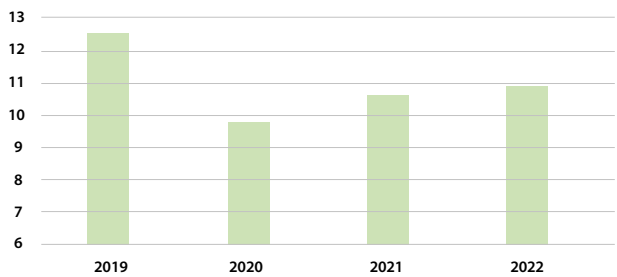


Lowering our consumption of fuel and electricity in 2020 and 2021 was strongly related to the health crisis context.

In 2022, the overall involvement of employees and the investments made in our offices also made it possible to avoid a significant volume of GHG emissions. Our energy consumption in 2022 decreased by 13% compared to 2019, to a level similar to that in 2020.

This was possible thanks to the eco-gestures of most employees and the energy-saving works carried out.

Business travel by car  
(in millions of km)



Examples of significant results in 2022  
in Antea Group offices:

	Arras	Nantes	Toulouse
Investments made	Replacement of 70 % of neon tubes by LEDs Change of radiators Insulation of slabs + 120 m <sup>2</sup> of offices	Replacement of 100 % of neon tubes by LEDs	Replacement of 40 % of neon tubes by LEDs New insulating entry door
Reduction of electricity consumption in 2022 vs 2019	- 27 % per m <sup>2</sup>	- 20 %	- 37 %

## 3.2 GHG emissions avoided since 2020

### Energy

The 'Energy' item ranks second in our Bilan Carbone® after inputs and fixed assets. It includes fuel consumption for business trips by car and electricity consumption. Our territorial coverage (30 offices) and the size of our car fleet explain the company's carbon impact for this item, mainly related to travels to and from project sites and between our offices.

Our action plan emphasizes improvements in terms of conduct (eco-gestures, responsible digital awareness, eco-driving, etc.) and investment: more economical and durable equipment, such as replacing current lighting in offices with modern technology LED bulbs, development of a hybrid car fleet, use of high-performance tires, etc.



### ENERGY

#### Annual reduction target

**316** tons of CO<sub>2</sub> equivalent

#### GHG emissions avoided compared to 2019

2020 **423** tons of CO<sub>2</sub> equivalent

2021 **212** tons of CO<sub>2</sub> equivalent

2022 **191** tons of CO<sub>2</sub> equivalent



Travel

Travel represents our third largest source of emissions. This includes emissions from business travel by train and plane, as well as commuting by car. In this area, progress is sought to move towards more eco-responsible modes of transport (promotion of cycling, encouraging carpooling, encouraging the use of trains and public transport).

Our CO2 emission reduction related to travel greatly exceeds the target set each year.

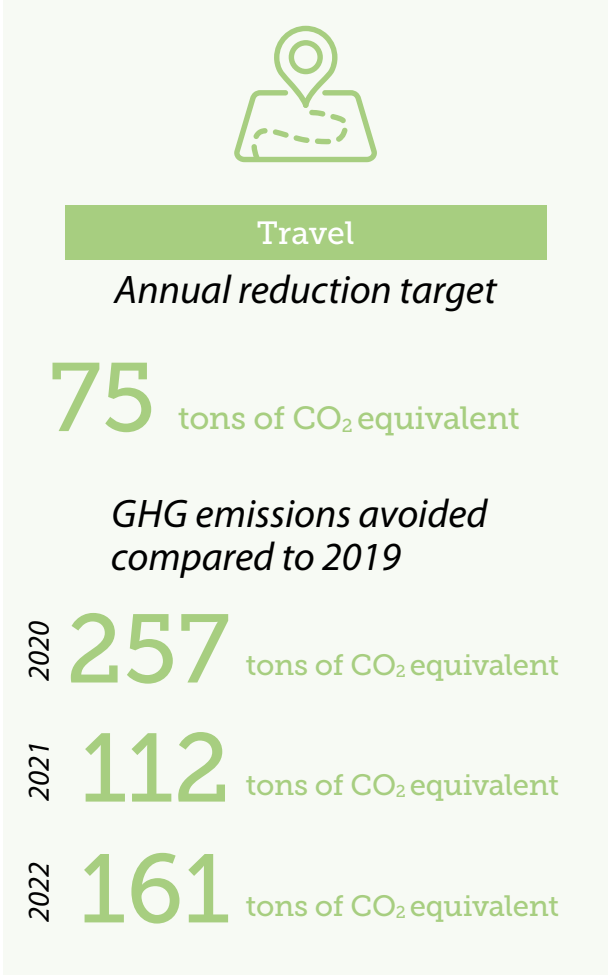




Remote working, which has been widely developed since the start of the health crisis, has had an obvious impact on reducing commuting. Many of our employees have become accustomed to this new way of working and have adopted it by signing a Remote Working Amendment to their employment contract (see page 22).

Regarding business travel by train and plane, 2020 and 2021 were also marked by the pandemic and travel restrictions, which led to a drop in journeys of all types. Air travel, although it increased in 2022 compared to 2021, remained lower than in 2019.

Replacing, as far as possible, plane by train in our business trips is one of the targets of our action plan. The actions implemented have already been perceptible in 2022: the proportion of train journeys compared to the total train and plane journeys has increased from 65% in 2021 to 72% in 2022.

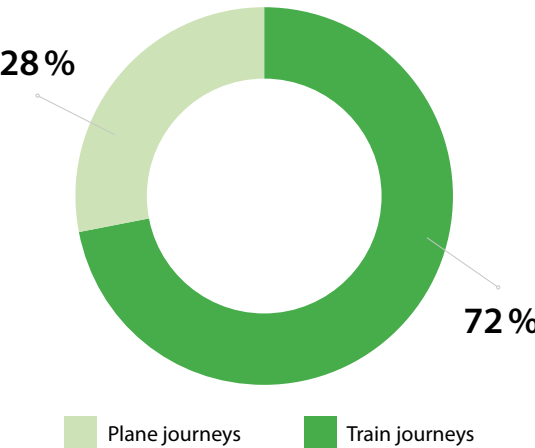
Business travel by plane, which could be replaced by train when the train journey time is less than 4 hours, represents 2% of total CO2 emissions. This is a potential reduction in emissions for the next few years, while maintaining travel time that competes with air transport.



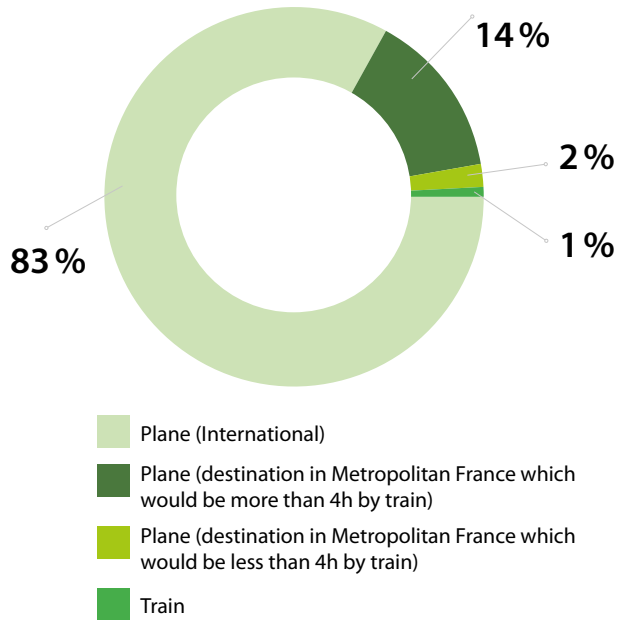
	2019	2020	2021	2022
 Emissions related to train journeys (in tons of CO <sub>2</sub> equivalent)	10	2	2	3
 Emissions related to plane journeys (in tons of CO <sub>2</sub> equivalent)	265	21	162	242



Proportion of number of journeys by train and plane in 2022



Distribution of CO<sub>2</sub> emissions related to our travel by train and plane in 2022







## Waste

Waste represents less than 1% of our carbon footprint. It is produced by our tertiary activities in our offices and during our on-site services which require the use of specific equipment.

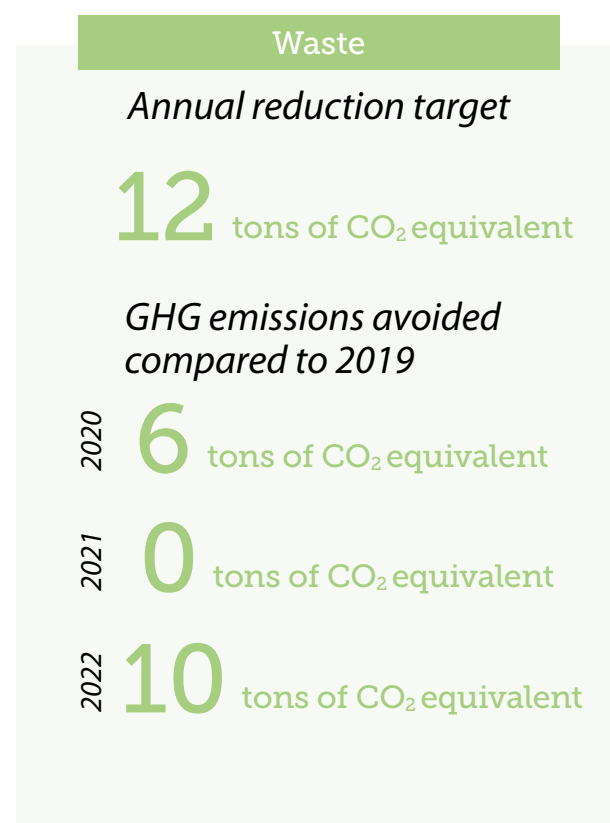
As an engineering firm specialized in environmental services, we must adopt exemplary conduct in the management of our waste. This is why our action plan targets improvements of our sorting and recycling habits.



Numerous actions undertaken since 2020 have helped achieve a level of CO<sub>2</sub> emissions reduction close to the target set:

**01** Optimization of the sorting system in our offices (5-stream sorting system in all of our offices).

**02** Recycling of Waste Electrical and Electronic Equipment (WEEE) and all of our PPE (masks, protective nets, gloves, helmets, etc.) via a service provider.



A framework agreement was signed in November 2021 in order to effectively ensure the regulatory 5-stream sorting scheme in all of our offices. We have gone beyond this regulatory obligation: by deciding to also recycle all of our PPE via a specialized service provider, we have introduced a 6-stream sorting scheme.

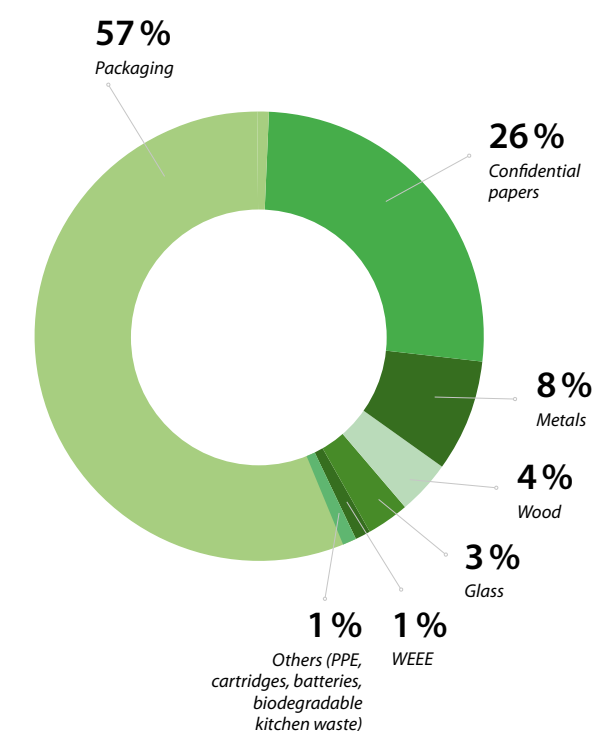
Attention is paid to our ability to sort as many waste streams as possible so that they are recycled or at least recovered.

**The recycling rate reached 42% in 2022**, with 72 tons of waste sorted for recycling and recovery (paper, plastics, wood, metals, PPE, etc.) and 100 tons of household waste generated, i.e., a total of 172 tons of non-hazardous waste.



Number of pages sent to be printed	1 226 848
Number of pages actually printed	1 152 573
Pages canceled by the user or expired	74 275

## Waste sorted in 2022



The change of photocopiers in 2022 and the implementation of individual access system has enabled us to eliminate waste linked to printing errors.

In the first 6 months, we achieved a 6% saving in our printing.

All the saved pages are equivalent to a column of reams of paper 8 meters high. To this we can add the associated reduction in ink and electricity.

i.e. **6 %**  
saving in print requests

### 3.3

## Responsible purchasing

*Antea Group is committed to the three constituent dimensions of sustainable consumption:*



### Buy better

We include in our specifications and our contracts for the supply of goods and services clauses relating to the restriction of environmental impacts, respect for human rights, and the creation of value for all stakeholders.

When purchasing goods – office supplies, building materials, furniture – we promote the use of recycled products and recyclables from short channels, with low environmental impact, as well as products and services which are part of a circular economy approach, etc.

Solidarity purchasing is also an important part of Antea Group's responsible purchasing policy. In 2021, we initiated a process to identify our suppliers from programs such as "integration through economic activity of people who are furthest from being employed" and the "protected and adapted sector" such as Adapted companies (EA) as well as Work Support Establishments and Services (ESAT). This approach facilitates the professional integration of people who are struggling to get work and/or have a disability.

When purchasing services, we include the review of ESG indicators in the analysis of proposals submitted to us and in the selection process of our suppliers. These, as well as the operational implementation of the commitments made, are monitored for the duration of contracts and taken into account in the process of evaluating our suppliers.

We take care not to put our suppliers in a situation where they are economically dependent.

### Consume better

We promote feedback and capitalizing on individual and collective best practices in terms of saving resources, both in the daily lives of our own teams and in the consulting services offered to our clients.

We promote the reuse of goods, particularly furniture, internally or through partnerships with circular economy stakeholders, as well as limiting the use of single-use equipment in our daily actions.

In some of our offices, spaces for recycling books and toys have been made available to employees.

We also carry out actions within the framework of our projects, by imposing on our suppliers the deployment of operational solutions in terms of health, safety and the environment and support them in the appropriation of these initiatives.

### Dispose better

We value the transition from possession to usage by going beyond the purchase of goods and by integrating the end of life of products into our daily practices.

We implement systems at our sites that promote the reduction and recovery of waste (see pages 36 and 37).



### Renewal of mobile phones

In 2022, mobile phones had to be renewed.

With a view to combating waste and increasing the lifespan of equipment, while maintaining a high level of quality, each employee was offered the option of either renewing their mobile or keeping it until the next renewal.

About 20% of people decided to keep their current mobile phone.

In addition, the two new models selected for renewal were analyzed to verify that they were compatible with our business lines, resistant, and easily repairable.

As for the old mobiles, our partner BETOOBE restored them to put them back on the market.

A total of 720 mobile phones were refurbished. 100 of them were bought by employees. The remaining mobile phones were put back on the market by BETOOBE.

### 3.4

## Commitment to a sustainable and virtuous future

### "Antea Group Climate Conferences"

In 2022, we initiated a cycle of 3 conferences per year to contribute to knowledge sharing about climate change.

Nearly 1,700 people took part in these events led by speakers of national or international repute.

**In February in Paris, Jean Jouzel**, paleo-climatologist, former vice-chair of the Scientific Working Group of the IPCC, presented the current state of global warming and its impacts.

**In June, Laurent Bopp**, oceanographer and climatologist, member of the IPCC, explained the consequences of climate change on the water cycle and the oceans.

**In November** at the Musée des confluences in Lyon, **Florence Habets**, hydro-climatologist at the CNRS, focused on the impacts of climate change on water resources.



Laurent Bopp - June 2022



Florence Habets - November 2022



*"Educating the general public about the ecological transition in the broadest sense of the term, is key!"*

**Jean Jouzel**

Jean Jouzel - February 2022





# Support to environmental associations

In 2022, we provided financial support to two selected environmental associations following a vote in which all Antea Group employees took part.

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## APAD (Association for the Promotion of Sustainable Agriculture)

Its mission is to promote Soil Conservation Agriculture. This type of agriculture makes it possible to reduce erosion, restore soil fertility, and promote biodiversity. Donations funded the organization of a technical day and sharing experiences on fertilization in soil conservation agriculture.

<https://www.apad.asso.fr>



## Planète Mer

Planète Mer mobilizes local stakeholders to recover a sustainable balance between marine life and human activities, reconciling both respect for fundamental natural balances and economic and social development. Donations helped the organization of study days with fishermen to successfully carry out scientific monitoring of key species for Var fishermen, such as red mullet or sea urchins.

<https://planetemer.org>

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## Principle 9

Promote the development and dissemination of environmentally friendly technologies

## Contributions of our activities to the Sustainable Development Goals (SDGs)

*Our reaffirmed desire to improve the company's environmental performance is also expressed daily in the environmental management of our projects for better consideration of the SDGs. Continuous improvement of our environmental engineering meets the needs of our clients, their ambition to control the environmental footprint of their projects, in a national or international context that is increasingly demanding in terms of sustainable development.*

Water sector	46
Environment sector	48
Infrastructure sector	50
Measurement and environmental data management sectors	52
Our international and overseas activities	54
Research & Development Innovation	56



## Engineering expertise to tackle the challenges of climate change and environmental preservation

*Faithful to our commitment towards the **5 Sustainable Development Goals** for which we are especially mobilizing our efforts, we support our clients, both private companies and local authorities, in taking into account their environmental challenges, in France and around the world.*



Antea Group's expertise is divided into four major business lines: water, environment, infrastructure, measurement and environmental data management. The following pages illustrate, with examples of projects, some of the many activities included in these areas.

Beyond the expertise specific to each business line, **the multi-business-line cross-disciplinary approach** of our teams makes it possible to tackle major challenges such as climate change, energy transition, or pollution and risk management.

The multiple technical skills and know-how of our engineers are provided to our clients to assess and, if necessary, increase their contribution to the six **environmental objectives defined by the European green taxonomy\***:

- Mitigation of climate change,
- Adaptation to climate change,
- Sustainable use and protection of water and marine resources,
- Transition to a circular economy,
- Pollution prevention and control,
- Protection and restoration of biodiversity and ecosystems.

\*The EU green taxonomy is a system for classifying economic activities which helps identify those that are environmentally sustainable, i.e., do not worsen climate change. A genuine "environmental compass" of the EU, the taxonomy was launched by the European Commission in 2018 to guide and mobilize private investments to achieve climate neutrality by 2050 (source: [https://france.representation.ec.europa.eu/informations/taxonomie-verte-mode-demploi-2022-01-13\\_fr](https://france.representation.ec.europa.eu/informations/taxonomie-verte-mode-demploi-2022-01-13_fr))



## Sponsorship of multidisciplinary skills for the *Domaine national de Chambord*

Over the past ten years, the *Domaine national de Chambord* has undertaken numerous restoration projects of the chateau and the park, with the support of sponsors. Antea Group is part of this innovative approach, as it mobilizes a rotating team for 300 days over 3 years to carry out 3 large-scale projects requiring multidisciplinary expertise:

- feasibility study to set up a geothermal energy system,
- study and project management for the restoration of the ecological continuity of waterways,
- diagnosis and implementation of heritage management plan for the structures located over the 5,440 hectares of the Estate.

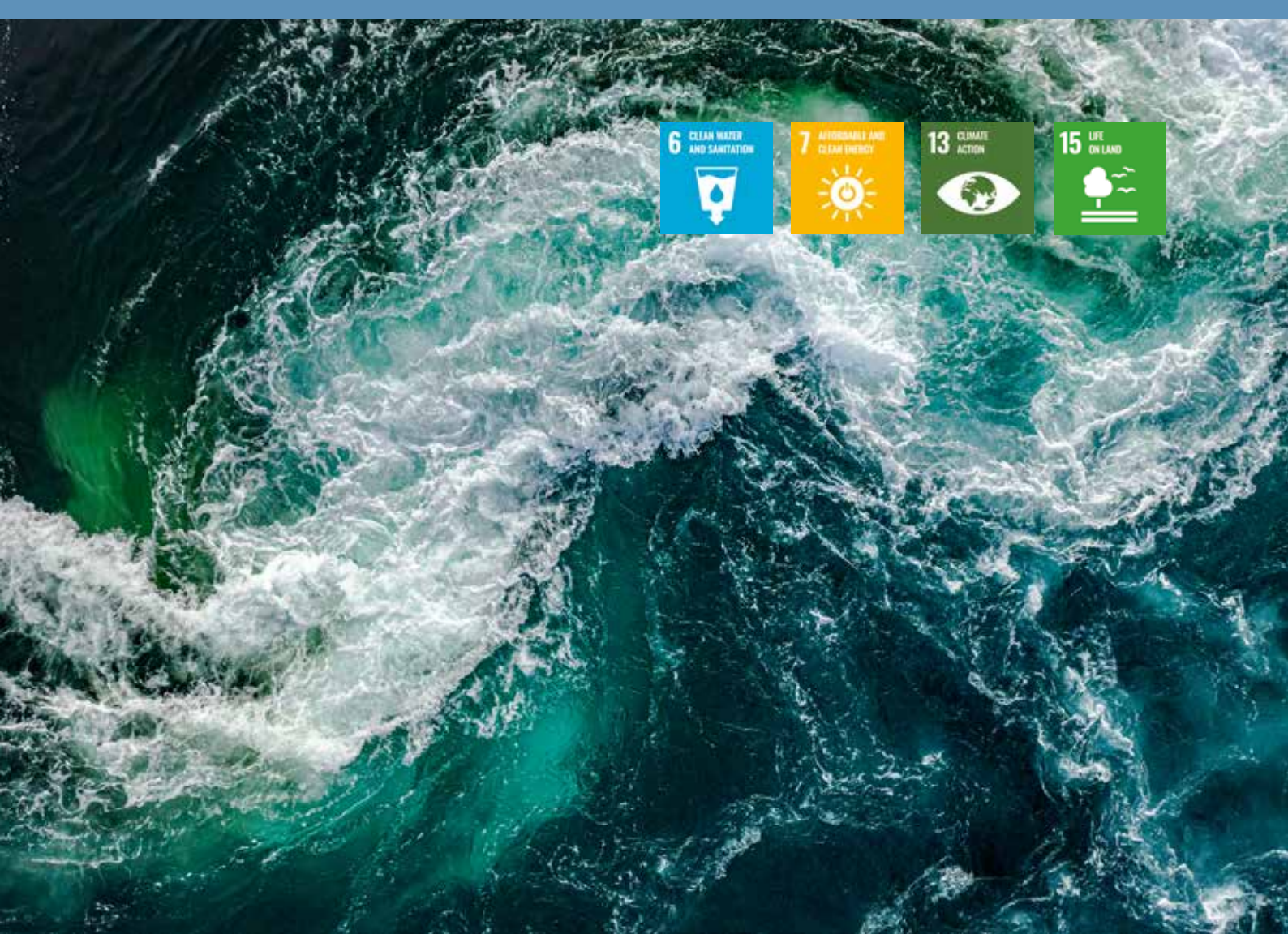



*Mr. Frédéric Bouilleux, Deputy managing director of the Domaine national de Chambord, and Mr. Pascal Voyeau, Managing director of Antea Group at the signing of the partnership on November 22, 2022*


This project illustrates both our ability to meet the multidisciplinary needs of various clients as well as our environmental commitment.

Through this sponsorship, Antea Group is very proud to contribute to the preservation of emblematic French heritage and the reduction of its carbon footprint.




**197**  
geothermal energy  
projects initiated in 2022



**292**  
sanitation-related projects  
initiated in 2022



**109**  
hydraulic infrastructure  
and aquatic environment  
projects initiated in 2022

## Examples of 2022 project



© Frédéric LAGLERA

### Turbining of wastewater for the production of renewable energy in the Tignes treatment plant

As part of the construction of a new wastewater treatment plant in Tignes, IRH Ingénieur Conseil participated in the development of an innovative solution for the production of renewable energy.

The particularity of the project, beyond the hydraulic energy it develops to reduce the operating costs of the facility, was to take into account many constraints linked to the mountainous site and the ski resort activity: lack of space, slope, very negative temperatures, workload variations linked to tourism.

The solution implemented consists of wastewater turbining. Previously treated in a 1,200 m<sup>3</sup> buffer tank set up upstream, the wastewater is freed of suspended solids and waste present in the water by grinding then sifting using very fine mesh filters. It is then directed to the decontamination plant, located lower down, thanks to a 6.5 kilometer penstock over a drop of 470 meters, with pressure of 50 bar at the inlet of the turbine. In high season, the turbining facility produces up to 60% of the electricity needed to operate the treatment plant.

## Engineering and consulting services for the sustainable management of water resources

Our integrated approach, from the major cycle to the technical water cycle, tackles the major challenges of climate change, energy transition, and pollution and risk management.

Faced with increasingly frequent water stress situations, we support local authorities, manufacturers, and institutions throughout their projects to protect and develop water resources. Our experts in hydrogeology, hydraulics and water treatment work together with our geomatics specialists and data scientists to develop adapted and innovative solutions in various fields.

This includes Integrated Water Resources Management (IWRM) to improve planning tools in France and internationally. For example, 'Hydrology - Environment - Use - Climate' studies (HMUC in French) or prospective studies assess the impact of human activities and climate change on water resources and determine the most effective strategies in a given territory for the coming decades.

Water is also a source of renewable energy. Antea Group is

involved in all water energy recovery sectors: geothermal energy, recovery of calories from wastewater, production of biogas from sewage sludge methanation, micro-turbining of water flows, etc.

Our proven expertise in drinking water and sanitation infrastructure makes it possible to increase their performance and resilience, guarantee compliance with regulations, and renew them in certain cases. We help to meet the challenges of saving resources, in particular by searching for leaks and controlling pollution.

The Antea Group teams also take part in hydraulic works - dikes, dams, banks - to control flood risks as well as the renaturation of aquatic environments and the restoration of the ecological continuity of waterways.

Finally, given increased restrictions, industries request our engineering expertise for the treatment and management of industrial water, thus controlling their resources, their processes and their discharges.







307

permitting projects  
in 2022



1 999

environmental assessment  
on potentially polluted sites  
in 2022



360

projects in which we acted  
as assistant to the contractor  
or as project manager  
for site remediation in 2022

## Examples of 2022 projects



### Remediation of the former refinery in Frontignan: an exceptional project

In order to carry out a major multi-activity development project in the middle of the town, the site of the former Mobil refinery is undergoing remediation works over an area of 11 hectares.

Antea Group produced the design plan for the works and is supervising the site as project manager for a period of 3 and a half years. The site context posed a major technical challenge: carrying out earthworks while limiting unpleasant odors for local residents.

The technical solution that has been adopted is the installation of a 50 x 120-meter mobile inflatable tent. It will be moved 17 times without being disassembled to carry out the works to excavate 165,000 m<sup>3</sup> of earth under cover on most of the land.



### PFAS sampling campaigns and analysis for the city of Pierre-Bénite and neighboring municipalities

The city of Pierre-Bénite and the surrounding municipalities commissioned Antea Group to carry out sampling and analysis campaigns of PFAS, per- and polyfluoroalkyl compounds, following a journalist investigation which denounced the existence of local pollution by these pollutants. Samples from different environments were taken then analyzed: surface soil, groundwater, surface water, drinking water, foodstuffs and ambient air.

The project led to the inventory of PFAS concentrations in these environments in several municipalities and to the objective interpretation of the results. Additional missions have been launched to pursue investigations, particularly regarding the contamination of foodstuffs, and to support local authorities in decision-making faced with this health risk.

## Engineering and consulting services for the environmental performance of projects and risk management

Our planet is facing major environmental challenges: climate change, increasing scarcity of resources, loss of biodiversity, artificialization of the soil, etc. Mastering the best available technologies now seems essential to preserve the environment.

Whether industrial sites or real estate assets that are occupied, in the process of reconversion, or abandoned, our environmental experts guide economic stakeholders in their efforts to preserve their environment, and prevent and manage environmental, health or accidental risks.

Antea Group engineers carry out all types of environmental and/or regulatory studies: environmental authorizations, impact assessment, risk analyses, regulatory compliance assessment, etc.

In a context of land scarcity, the management of soil remediation and the reconversion of brownfields are major land development challenges in which Antea Group is involved as an engineering firm, acting as assistant to the contractor or as project manager. The identification of PFAS, or per- and polyfluoroalkyl compounds described as "eternal" pollutants, is part of this soil remediation approach, or of broader projects for assessing the risks of water, air or foodstuffs contamination.

Antea Group creates and implements effective Hygiene, Health, Safety and Environment programs, which aim to reduce risks, particularly in terms of work accidents and environmental issues, but also to promote wellbeing at work.







## Engineering and management of infrastructure projects

Our areas of expertise are varied and complementary and include designing, planning, constructing, maintaining, monitoring, decommissioning, managing and recovering materials or waste.

Our historical know-how in geotechnical engineering is used for the development of wind farms and photovoltaic farms, for example on former waste storage sites to avoid the use of new agricultural or natural areas.

Our expertise in civil engineering is put to use for the maintenance of heritage facilities and sites in France, the extension of their operating life, and the development of infrastructures for soft mobility such as bridges for bicycles, greenways, etc.

In a context of climate change, the frequency and intensity of natural risks are accentuated. To make sure people and

sites are safe, our geologists and geotechnical engineers carry out studies on the potential risks on high-stakes sites and provide project management services for all types of hazards: falling boulders, landslides, subsidence of underground cavities, erosion of banks and coastlines, floods, etc.

In building decommissioning projects, we are developing the circular economy for twofold environmental added value: the preservation of natural resources and the reduction of waste volumes.

In addition, our management of asbestos and lead risks on sites addresses a major public health issue.

With regard to waste, we are involved in the entire waste management cycle: from collection to its recovery.



**225 000**

tons (22 times the Eiffel Tower)  
of materials recycled throughout  
our projects in 2022\*



**1 020 MW**

cumulative power of wind and  
photovoltaic projects completed  
by Antea Group in 2022

\* Mainly recycled crushed concrete

## Examples of 2022 project



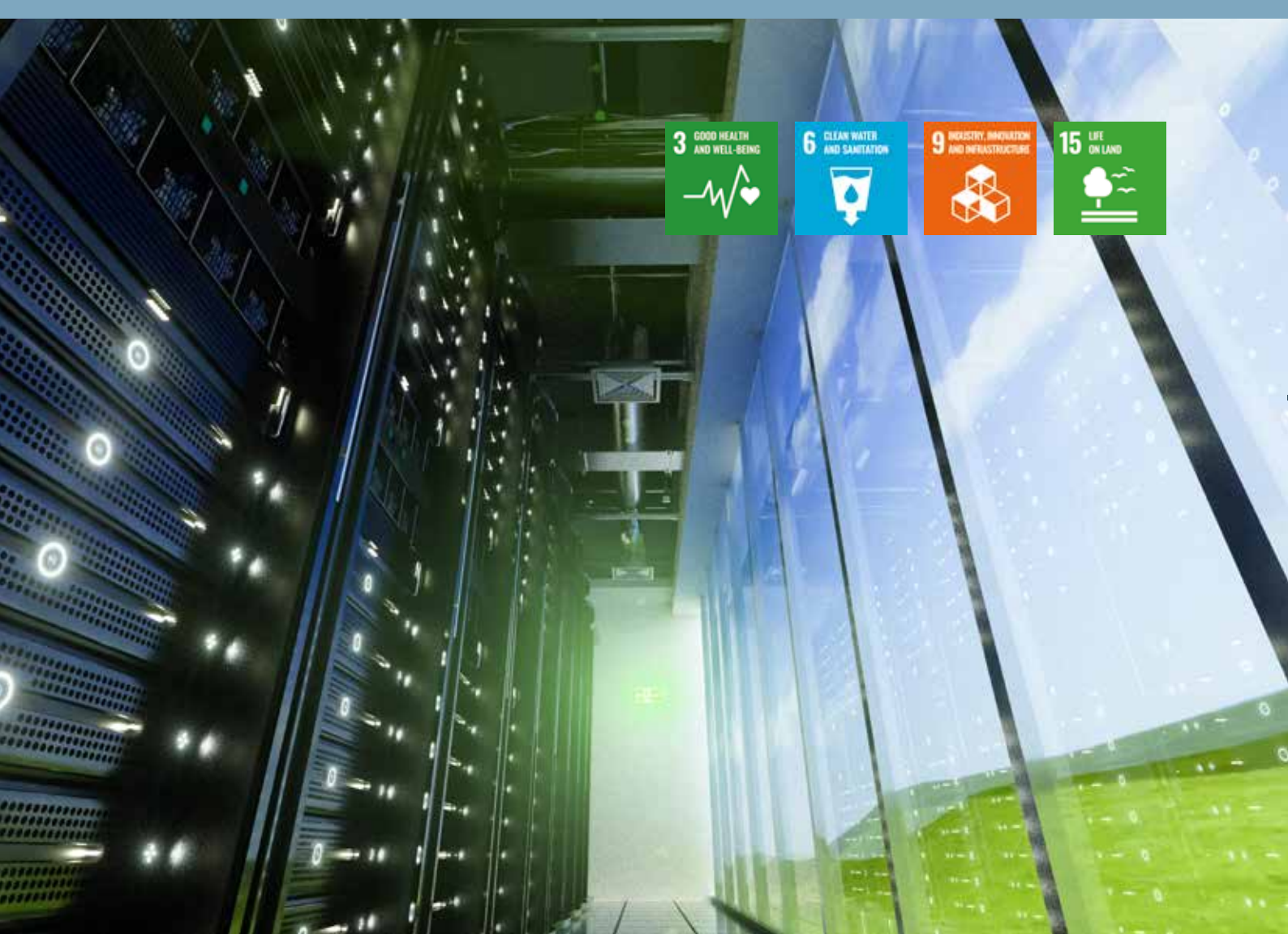
### Hydraulic works in Seine-et-Marne to protect Paris from the Seine when it rises

The EPTB Seine Grands Lacs has made the careful decision to build a flood-limiting structure upstream of Paris to control the risk of flooding, as the floodplain of the downstream Bassée no longer fulfills its role of slowing down rising water because of its evolution (exploitation of gravel pits, channeling of the Seine, etc.). Antea Group is managing the construction of hydraulic works on the first pilot site. The 380-hectare area will be filled by pumping into the Seine in the event of a major rise in the water caused by the Yonne river.

The facility in the process of being created, with a storage capacity of 10 million m<sup>3</sup> of water, will be marked out by approximately 8 km of dikes surrounding a series of gravel pits. It will be fed by a pumping station with a nominal flow rate of 42 m<sup>3</sup>/s.

To preserve the environmental balance of this exceptional wet area, the design of the hydraulic works is based in particular on the integration of the pumping station into its environment, landscaping with revegetation of the facilities, limitation of the environmental impact of the project by supplying the vast majority of construction materials by river.





# Measurement and environmental data management

Our teams at IRH Ingénieur Conseil develop water, air, noise and odor measurement and control techniques to meet the challenges of protecting health and the environment.

In the field of water, they can characterize all types of water, define the state of the natural environment, evaluate the performance of treatments, and help maintain their regulatory compliance.

Air quality is also an important aspect for public health. Our engineers and technicians carry out measurements in the ambient air, on atmospheric emissions and on operators to assess occupational exposure. Our air engineering division provides comprehensive services for monitoring and improving urban air quality, indoor air, site and works monitoring, odor management, studies and ventilation/air treatment works.

The amount of data related to the environment, water, air, and other related components such as production parameters, is becoming massive and can be difficult to manage for manufacturers, local authorities, and other institutions. They must not only store this environmental data securely, but also be able to use it to leverage it for action or in support of decision-making.

For this, Antea Group deploys many services, software, web platforms, digital tools, and tailor-made solutions to facilitate the management of environmental data, the management of geographical data, modeling, continuous environmental monitoring, and natural resources management and prediction.



**2 285**  
Water and air  
measurement  
projects in 2022



**59 %**  
of the national territory  
covered by our data  
management tools in 2022

## Examples of 2022 project



### Continuous environmental monitoring in the Charente region

The Charente Aval Public-Private Association (Syndicat Mixte - SMCA) which is in charge of aquatic environment management and prevention of floods in that region wishes to achieve balanced and sustainable management of aquatic environments and prevent flooding. The implementation of a monitoring network (water levels, flow measurement, piezometric levels) provides the SMCA with a global vision of its 5 sub-watersheds. Our environmental monitoring solution now enables marsh stakeholders and users:

- to monitor water levels and trends in real time,
- to have dashboards and indicators,
- to be alerted by notifications if the threshold is exceeded.

This solution is a real management tool available to the SMCA to coordinate uses day to day while preserving water resources and associated environments.

## Focus



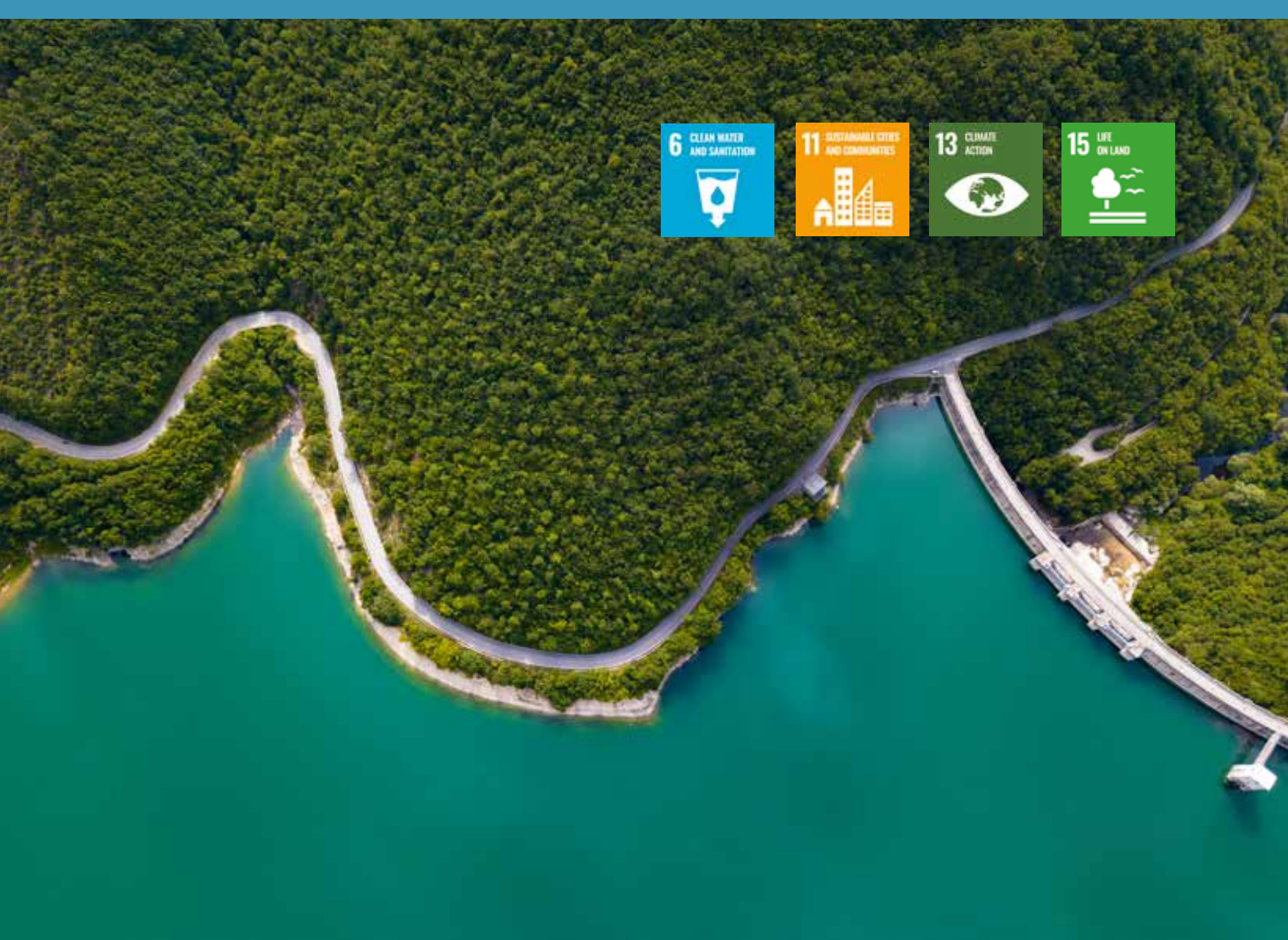
### More than 200 plants measured during the new RSDE STEU\* campaign

IRH Ingénieur Conseil has been involved from the start to the RSDE actions implemented nationally to help its clients meet the European ambition of improving the quality of the aquatic environment. In 2022, the teams worked on more than 200 collective wastewater treatment plants as part of the new cycle of RSDE STEU measures.

These measurement campaigns are carried out simultaneously at the plant entry and exit to determine the concentrations and flows of micropollutants. They provide local authorities with better knowledge of effluents and their impacts. This data is used for the development of action plans to reduce micropollutant emissions, thus improve the quality of water bodies.

\* Search for and reduction of Discharges of Hazardous Substances into Water (RSDE) from Wastewater Treatment Plants (STEU) with a capacity of more than 10,000 population equivalent





## Our international and overseas activities

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Antea Group offers services to both public and private clients worldwide.

Dedicated teams work on development projects funded by funding agencies such as the World Bank and the Agence française de développement, for better access to essential services for local populations and the development of sustainable infrastructure.

These projects focus on access to drinking water and sanitation, as well as the integrated management of water resources.

For infrastructure projects such as the construction of a power line or a road, it is imperative to identify, avoid, minimize and, as a last resort, compensate for the damage caused to populations and to the environment. To this end, Antea Group carries out environmental and social impact assessment as well as associated studies.

For waste management, we assist local authorities in the design and implementation of waste collection, sorting, storage, and recovery policies.

We provide our services in compliance with the latest international environmental and social standards in force, namely the IFC (International Finance Cooperation) standards of the World Bank.

In the private sector, our experts provide manufacturers and multinational groups with solutions related to their own ESG, including water (see our CDP and AWS accreditations p. 25), health, safety and the environment.

In 2022, Antea Group's International Division was ISO 9001 certified for its Quality management, recognized as the reference standard worldwide in terms of best practices for continuous improvement of services.

Overseas – French Guiana, West Indies, Réunion Island, New Caledonia – our fields of activity are similar to those in metropolitan France, while taking into account local constraints or specifics.



## Examples of 2022 projects



### Pristina (Kosovo) urban area wastewater treatment project

The sanitation network of the Pristina Water Authority is poorly maintained and does not have an operational wastewater treatment system. Antea Group is providing technical assistance over a period of 4 years in terms of design, procurement of works, works supervision, transfer of skills to the Authority, and assistance in the operation of the future plant designed for a population of 335,000 inhabitants in 2040 and a flow of 103,000 m<sup>3</sup>/day.

This investment is significant in this country and should make it possible to rapidly improve the health and environmental conditions in the Pristina urban area. Another important expected benefit relates to the improvement of the water quality of the Sitnica river, which belongs to the Danube hydrographic system.



### Reinforcement of waste storage and recovery capacities in Saint-Pierre in Réunion Island

The Syndicat Mixte ILEVA, which processes half of Réunion Island's household waste, stores waste in a Waste Treatment and Recovery Center (CTVD) in parallel to the operation of the "RunEVA" plant. This multi-sector facility will allow pre-treatment of all household waste before storage of so-called final waste. The objective is to reduce the proportion of waste stored at the CTVD by more than 80%: 45,000 tons per year instead of 240,000 tons.

Antea Group handles the comprehensive project management of the creation of a T7 storage area, the T6 area being almost full, and also supports ILEVA with procurement for the operation of the site.





## Research & Development - Innovation

Technical excellence and innovation are deeply embedded in Antea Group's development strategy. The Research & Development-Innovation Department focuses its activities on complex environmental issues, and offers ever more sustainable, optimized, and secure solutions.

Particular attention is paid to projects that affect the entire environmental data value chain, including data acquisition and management, the creation of dedicated information systems, the valorization of data, namely by using innovative predictive models. Opposite are two examples of projects carried out by our R&D-I teams in 2022.



## Examples of 2022 projects



### How to improve the coastal submersion warning systems?

Artificial intelligence now makes it possible to accurately model coastal submersion phenomena linked to extreme oceanic and weather events. However, the calculation times are too long for a "real time" use of these models in prediction and warning systems.

In collaboration with the French Geological Survey (BRGM) and the University of Toulouse Paul Sabatier, Antea Group introduced a more efficient early warning predictive tool: the RISCOPE-D demonstrator. It can quickly identify risks to property and to people, as well as the best evacuation and/or protection scenarios. It is adapted to the needs of non-specialists in modeling: local authorities, State services, crisis managers, etc.

The model was developed for the Gâvres (Morbihan) site, located on a peninsula that is regularly exposed to overflowing waves. The demonstrator showed the possibility of going from 50 hours to 2 minutes' calculation to predict the risk for direct targets: town hall, gymnasium, evacuation road, etc.



### Climate change and water source flow prediction using artificial intelligence

Due to climate change, more and more industrial clients requiring water in their process are faced with the risk of water shortage for their production in periods of low water or drought. To predict source flows and anticipate water deficits, the available historical data is often insufficient, or does not include extreme events. Antea Group's hydrogeologists and data scientists have developed an approach combining traditional modeling and a predictive statistical method based on artificial intelligence, which makes it possible to enrich real data with simulated data on extremely wet or dry conditions. Thanks to the integration of this "meta-model" or "digital twin" in an API type application, the client is informed in real time of the evolution of risk conditions for the following days or months and can consider a planned adaptation of its production. These types of model and approach can be applied to a wide range of projects, such as the qualitative evolution of a water supply or the management of thresholds for the risk of flooding.





# Correspondence table SDGs and Antea Group activities



Enable everyone to live healthily and promote the well-being of everyone at all ages. Promote mental health and wellbeing. Reduce accidents on the road. Reduce deaths and illnesses due to dangerous chemical substances and pollution in the air, water, and soil.

**P19/24 - Cohesion, health and well-being at work - Safety**  
**P48 - Engineering and consulting services for the environmental performance of projects and risk management**  
**P52 - Measurement and environmental data management**



Achieve gender equality and empower all women and girls. Adopt policies for the promotion of gender equality.

**P16 - Diversity and non-discrimination**



Ensure access for all to sustainably managed water supply and sanitation services. Ensure that water integrated management of water resources. Ensure access to drinking water at an affordable cost, and access for all to sanitation services. Improve water quality by reducing pollution, by halving the proportion of untreated wastewater.

**P46 - Engineering and consulting services for sustainable management of water resources**  
**P52 - Measurement and environmental data management**  
**P54 - Our international and overseas activities**  
**P56 - Research & Development - Innovation**



Guarantee access for all to reliable, sustainable and modern energy services at an affordable cost. Significantly increase the share of renewable energy in the global energy mix. Provide modern and sustainable energy services to all inhabitants of developing countries.

**P46 - Engineering and consulting services for sustainable management of water resources**  
**P50 - Engineering and management of infrastructure projects**



Promote sustained, inclusive, and sustainable economic growth, productive full employment, and decent work for all. Promote safety in the workplace.

**P24 - Safety**



Build resilient infrastructure, promote sustainable industrialization that benefits everyone and encourage innovation. Adapt industries to make them sustainable, through a more streamlined use of resources and increased use of clean and environmentally friendly industrial technologies and processes. Boost scientific research, encourage innovation, increase public and private spending devoted to research and development.

**P48 - Engineering and consulting services for the environmental performance of projects and risk management**  
**P52 - Measurement and environmental data management**  
**P56 - Research & Development - Innovation**



Make cities and human establishments inclusive, safe, resilient, and sustainable. Significantly reduce the number of people affected by disasters, including those related to water. Reduce the negative environmental impact of cities per capita, paying particular attention to the quality of air and waste management. Protect and preserve the world's cultural and natural heritage.

**P50 - Engineering and management of infrastructure projects**  
**P54 - Our international and overseas activities**



Establish sustainable consumption and production patterns. Achieve sustainable management and rational use of natural resources. Achieve environmentally sound management of chemical products and all waste, and significantly reduce their release into the air, water and soil. Significantly reduce waste production through prevention, reduction, recycling and reuse. Promote sustainable practices in the context of public procurement. Make sure that all people, everywhere in the world, have the information necessary for sustainable development. Help developing countries move towards more sustainable consumption and production patterns.

**P28 - Our environmental commitments in the operation of the company**  
**P48 - Engineering and consulting services for the environmental performance of projects and risk management**  
**P50 - Engineering and management of infrastructure projects**  
**P56 - Research & Development - Innovation**



Take urgent action to combat climate change and its repercussions. Improve education, awareness regarding adaptation to climate change. Reinforce resilience and capacities for adapting to climate hazards and climate-related natural disasters.

**P28 - Our environmental commitments in the operation of the company**  
**P46 - Engineering and consulting services for the sustainable management of water resources**  
**P50 - Engineering and management of infrastructure projects**  
**P54 - Our international and overseas activities**  
**P56 - Research & Development - Innovation**



Preserve and restore terrestrial ecosystems, ensuring that they are exploited in a sustainable way, manage forests in a sustainable way, fight against desertification, halt and reverse the process of land degradation and end biodiversity loss. Guarantee the preservation, restoration and sustainable exploitation of terrestrial and freshwater ecosystems and related services. Integrate the protection of ecosystems and biodiversity in national planning, and in development mechanisms.

**P46 - Engineering and consulting services for the sustainable management of water resources**  
**P48 - Engineering and consulting services for the environmental performance of projects and risk management**  
**P52 - Measurement and environmental data management**  
**P54 - Our international and overseas activities**



Significantly reduce corruption and the practice of bribes in all their forms.  
**P8 - Human rights and ethics**





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**Antea Group France**

ZAC du Moulin  
803 Boulevard Duhamel du Monceau  
CS 30602 - 45166 OLIVET Cedex - France  
Tél. : + 33 (0)2 38 23 23 00  
[contact@anteagroup.fr](mailto:contact@anteagroup.fr)

[www.anteagroup.fr](http://www.anteagroup.fr)

