

Water



**Treating municipal & industrial water,
our daily challenge!**

johncockerill.com/environment





Municipal wastewater treatment plant, 54 000 PE (Amay, Belgium)



Odour treatment in wastewater treatment plant (insulated installation), 48 000 m³/h (Poland)

John Cockerill Environment: Preserving natural resources

Because access to resources and the development of green energy solutions represent crucial issues for our future generations, John Cockerill Environment makes its historic experience available to you, along with solid technological know-how and the willingness to be innovative in the domains of air, water and waste treatment.

Our deep expertise in the environmental domain enables us to respond to the needs of citizens, public bodies/authorities and industries from all sectors, thanks to solutions imagined for them:

- **The treatment** of industrial and municipal **water**;
- **Air pollution control and industrial ventilation** in harmful, corrosive and odorous atmospheres;
- **The thermal treatment of solid waste**, (biomass, activated carbon and sludge): Multiple Hearth Furnace MHF and Vertical

Shaft Kiln VSK, The Nesa Solution®;

- **Energy** (hydropower, bio-methanization, photovoltaic pumping, gas energy recovery, etc.);
- **Specific solutions:** smart water, electro-chlorination, micropollutant treatment Medix® etc.

John Cockerill Environment teams are capable of working at all the stages of a project, from conception and engineering to construction and commissioning, without forgetting operation and maintenance. This guarantees full

accompaniment phase by phase, with solutions suited to your new or existing installations.

John Cockerill Environment is located in Belgium, in France, in Hungary and the United States, and is able to rely on the worldwide network of the John Cockerill Group to put our expertise and our ideas into practice on the five continents.



Zero liquid discharge of effluents from a surface treatment line, 2 m³/h (France)



Multiple hearth furnace (MHF), The Nesa Solution®



Drinking water pumping station, 850 m³/h (Ndougong, Cameroon)



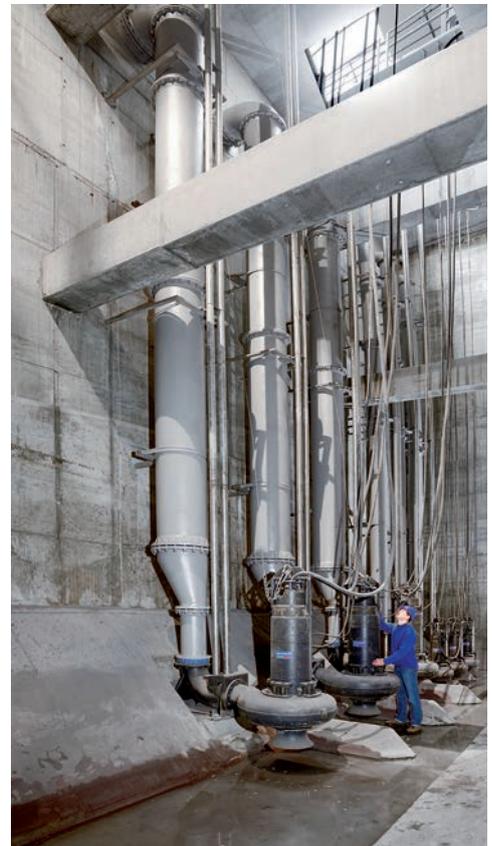
Water management, our daily challenge!

Water is a precious resource and at John Cockerill we do all in our power to protect it. Our knowledge and expertise of water allows us to meet all the needs of public authorities and industries with a constant adaptation to local regulatory and economic constraints.

In a world undergoing constant evolution, new regulations are coming into force all the time, bringing in a new set of constraints. This is why our experts in water, John Cockerill Balteau and John Cockerill Proserpol, put all their experience and talent at your service to offer complete, innovative, tailor-made solutions at the service of environmental performance:

- **Drinking water:** our solutions enable you to collect water from its natural environment and treat it to make it drinkable (groundwater, surface water and seawater).
- **Process water:** the water treatment is tailored to your needs and market requirements (de-mineralized water, iron-removed water, reverse osmosis, etc.).
- **Waste water:** we treat waste water (domestic and industrial wastewater, and sometimes rainwater) thanks to our knowledge in various processes: aerated sludge, MBBR, BRM, anaerobic treatment, physical-chemical treatment... The objective is to return clean water to the natural environment or for the purpose of reusing (watering, irrigation or industrial processes).
- **Recycling of sewage sludge:** waste water treatment from the treatment plant produces sludge. We offer treatment solutions for transforming the sludge into a product of agricultural or energetical value (biogas, cogeneration, gewatered sludge with lime addition etc.).

From design to commissioning, our John Cockerill Environment teams work closely with our customers to offer them treatment solutions with optimized investment and operating costs while meeting discharge standards. Public bodies/Authorities and industries from all sectors of activity (fine and heavy chemicals, the metal industry, electroplating, pharmaceuticals, cosmetics, food, electronics, mining, oil and gas etc.)... Our services are addressed to all, and cover both new and refurbishing or extension existing infrastructures.



Pumping station of wastewater, 1800 kW (Ampsin, Belgium)

Hydropower plant, 2.3 MWatt (Eupen, Belgium)



Drinking water treatment plant, containerized units, 750 m³/h (Kpong, Ghana)



Methanization, 100 m³/h (Pakistan)



Wastewater treatment plant, 200 000 PE (Ho Chi Minh City, Vietnam)



A sustainable initiative

John Cockerill Environment is committed to achieve the highest quality on every project and works collaboratively with clients to deliver results that exceed their expectations.

The local context, the technical environment, the geographical situation, cultural practices, etc., are the basis to design the best solution.

During preliminary studies that are discussed with the different partners, the various configurations of each project are proposed. The choice is then made in agreement with the different stakeholders.

John Cockerill Environment endeavours to ensure the sustainability of the infrastructures set up. The training of technicians and the follow-up and advice for the maintenance of the equipment are generally proposed, the aim being to guarantee with a long term view, a real autonomy for the facility's manager.

Quality and safety are key principles for John Cockerill Environment. We take great care to choose the right suppliers and subcontractors, and regularly subject them to evaluation on the basis of objective criteria.

As EPC contractor, John Cockerill Environment endeavours to develop and implement global solutions and partnerships based on mutual trust.

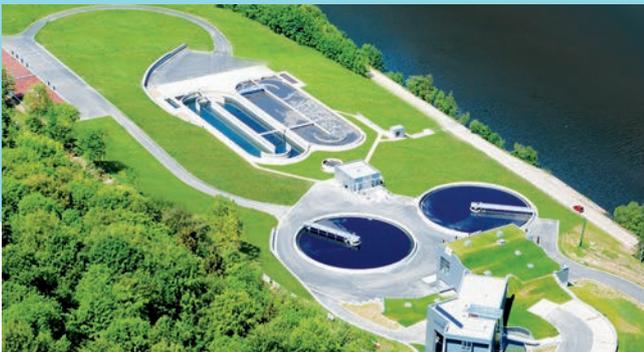
Climate change

Depending on the technical needs of each project, John Cockerill Environment is committed to choose equipment and processes with low energy consumption and environmental impact. The company aims to be environmentally friendly and to contribute to sustainable development.



Drinking water treatment plant, fully hydraulic driven 20 m³/h (Jikejemoku, Cameroon)

Municipal wastewater treatment plant, 93 100 PE (Namur, Belgium)



Drinking water treatment plant and pumping station, 800 m³/h (Jambes, Belgium)





Methanization, 631 m³/d (Casseneuil, France)



Dam, 65 000 m³/d (Eupen, Belgium)

Our fields of expertise



Municipal
Water



Industrial
Water



Energy

In each field, we have developed cutting-edge know-how and can thus support their customers from the preliminary studies to the detailed design, execution and commissioning.

This large experience is bolstered by specialist engineers in each of the areas mentioned above who have developed cutting-edge technical expertise.

This is appreciated especially in refurbishment work where the versatility of our teams and familiarity with processes lay the foundations for the unique service that John Cockerill Environment offers to its customers.

There are indeed numerous interconnections between the departments and each sector makes use of John Cockerill Environment's general resources (estimates, assembly, design office, general services, etc.).

*Chestnut crean
production, 28m³/d
(Donzère, France)*



*Wastewater
treatment plant,
13 000 PE
(Louvain-la-Neuve,
Belgium)*

From design to start-up



Drinking Water

Industrial Water

Energy

Drinking water

Water intake:

- Underground water
- Surface water

Treatment

Pumping

Waste water

Pumping station

Treatment

Sludge

Odour control

Stormwater tank

Process Water & Liquid Effluents

Wastes:

- Leachate treatment
- Sludge digestion

Agri-food:

- Slaughterhouse, Dairy, Fruits, Sugar factory, Brewery, Mineral water, etc.

Mining industry

Metallurgy / Steel industry

Oil and gas industry

Energy - Fuel

Chemistry

Pharmacy

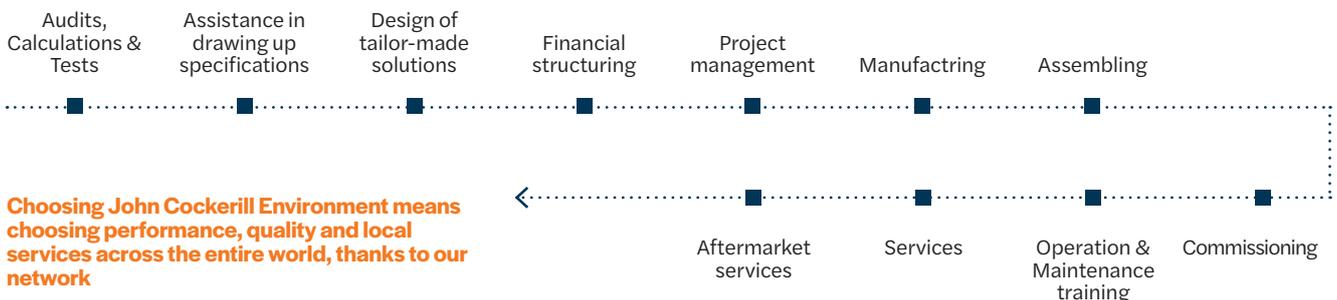
Paper industry, etc.

Energy

Hydroelectricity

Biomethanisation / Biogas

John Cockerill Environment, a unique expert for all your environmental solutions



Choosing John Cockerill Environment means choosing performance, quality and local services across the entire world, thanks to our network



Drinking water treatment plant, 50 m³/h (Tonga, Cameroon)



Dairy, 2 500 m³/d (Craon, France)

A single point of contact: turnkey solutions for engineering, equipment supply and construction

The design office

The design office is involved in 4 areas:

- the selection of the treatment method and the sizing of the process;
- electromechanical studies and equipment selection;
- the drawings (civil engineering guide drawings or electromechanical drawings);
- electricity (electrical design, automation, scada system, remote control and monitoring).

Our teams design solutions which best integrate the different constraints of each project:

- investment cost;
- cost and ease of operation;
- environmental integration;
- reduction of noise and olfactory pollution.

Overseas, John Cockerill Environment fosters partnerships with local design offices in order to ensure that it complies with local legislation, regulations and best practice.

The financing

Depending on the cases and needs, our teams can offer you financing solutions. For the financial package, we work with concessional loans (France, Belgium, United Kingdom, ...) and commercial loans with a private bank.

The supply chain

The supply of all the equipment necessary for your project is provided by our experts.

The assembly / Construction

Overseas, assembly is carried out by local companies. John Cockerill Environment can nevertheless ensure the management of the assembly operations through provision of experienced supervisors.

The commissioning of the facilities, at both electromechanical and process levels, can be carried out by our experts.

The operational assistance

During the operation, John Cockerill Environment can provide to its client advices on the management of the process and on the maintenance of the supplied electromechanical equipment.

Our process engineers are fully aware of the latest remote management technologies and can also coach the technical teams that will maintain the process. Remote advice and visits on request are also possible.

Special calculation software for modelling and dynamic simulation of different processes enable us to test various scenarios and to optimise the plant's control parameters.

Some references



Drinking water - Well, Kenya

- Drilling of wells and installation of production equipment to supply water to populations and livestock
- Average depth: 150 m
- Integrated complex: solar panels, generator, water tower, supply point



@photo-daylight.com

Sanitation - WWTP, Belgium

- Treatment by membrane bioreactor (MBR)
- Treatment of:
 - C,N,P
 - Sludge
 - Odours
- Capacity: 13 000 p.e.
- Advantages: high treatment performance, small footprint, capable of managing variations in pollutant load



Industrial water - Dairies, France

Characteristics of the effluent to be treated and performance of the installation

	Input	Output
Flow rate	2500 m ³ /d	
COD	8000 kg/d	50 mg/l
BOD ₅	5000 kg/d	15 mg/l
MES	1250 kg/d	20 mg/l
NTK	300 kg/d	5 mg/l
NGL	700 kg/d	10 mg/l
P	120 kg/d	1 mg/l



Energy ▪ Methanisation, Belgium (waste water)

- Capacity: 30 000 p.e.
- Sludge digestion and biogas production are used to heat the digester and feed the boiler to heat the operating buildings.
- 3000 kWh PCI

Research & Development

Driven by the same spirit of innovation as our founder, John Cockerill Environment pays great attention to the evolution in technologies. Disposing of its own laboratory for research and analyze, our enthusiastic team seeks out new ideas, innovative solutions, of partnerships and in more general terms of all skills liable to give greater performance to each of our projects.

In permanent relations with research centers, with universities and scientific partners, John Cockerill Environment makes best use of existing knowledge and know-how.

This translates into the application of new technologies, the acquisition of licenses and/ or the development of new tools.

Our certifications

John Cockerill
Balteau



John Cockerill
Proserpol



Intertek



Synteau
LES CONCEPTEURS ET CONSTRUCTEURS
DU TRAITEMENT DE L'EAU



John Cockerill building - « L'Orangerie », Seraing (Belgium) ©L.Desmoulin

The **John Cockerill** Group: Enabler of opportunities

Driven since 1817 by the entrepreneurial spirit and passion for innovation of its founder, the John Cockerill Group develops large-scale technological solutions to meet the needs of its time: preserving natural resources, contributing to greener mobility, producing sustainably, fighting against insecurity and facilitating access to renewable energy.

Its contribution to businesses, governments and communities consists of services and associated equipment for the sectors of energy, defense, industry, the environment, transport and infrastructures.

With over 6000 employees, John Cockerill achieved a turnover of 1.3 billion euro in 23 countries on five continents.

**Boldness,
vision,
entrepreneurial
spirit**

Solar thermal power plant



Wind energy



Our mission: Meeting the needs of our time

Meeting the needs of our time is the *raison d'être* of the John Cockerill Group. While the world changes more and more rapidly, it also faces more and more complex challenges: diminishing resources, population growth, globalization of the economy, etc.

At John Cockerill, our ambition is to combine the expertise gained from our long-standing tradition and the technologies born of our spirit of innovation to develop unique large-scale technical solutions. Solutions capable of supplementing the measures to be taken at the political, educational, economic and societal levels.

The services and equipment that we offer are efficient and sustainable.

There are 5 major areas in which we want to provide our added value in the years to come:



**Preserving
natural resources**



**Producing
sustainably**



**Contributing to
greener mobility**



**Fighting
against insecurity**



**Facilitating
access to renewable
energy**

The **John Cockerill** Group in the world...



Water

John Cockerill Environment

Avenue Greiner, 1 • 4100 Seraing, Belgium

Tél.: +32 (0)4 330 21 91

environment.water@johncockerill.com

johncockerill.com/environment

