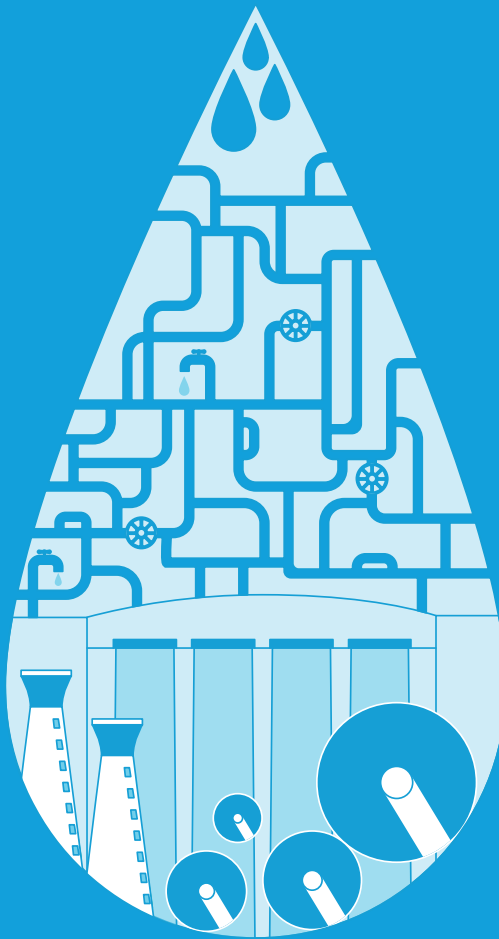


INTERNATIONAL WATER WORKS

Complete water-cycle management



A VITAL ISSUE
FOR OUR PLANET'S FUTURE

Helping to preserve an indispensable resource for all living beings is a critically important mission.

That is why our teams at the water-management division of VINCI Construction Grands Projets are committed to making your project a success.

ONE-OF-A-KIND WATER-MANAGEMENT EXPERTISE

VINCI Construction Grands Projets is a subsidiary of the VINCI Group, a leading global player in construction and concessions that employs more than 183,000 people in approximately a hundred countries worldwide.

We design and create **major engineering structures and buildings** all over the world.

International Water Works, the water-management division at VINCI Construction Grands Projets, delivers a full range of specialised services thanks to its comprehensive management of the water cycle.

TURNKEY AND CUSTOM PROJECTS

We leverage **our water-management expertise** to deliver turnkey projects, **from design to commissioning.**

In response to your needs, we can provide **custom and modular solutions at various project stages.**

We can also help **develop financial solutions for your projects.**

To meet stringent engineering and design requirements, **we deploy high-level professional and technical resources:**

- engineering experts who specialise in water management and wastewater treatment,
- a design department trusted by our clients and partners and endowed with new-generation 3D design software technology,
- engineers specialised in electricity, instrumentation and automation.

VINCI Construction Grands Projets employs innovative resources, including Building Information Modeling (BIM) – now a priority on all current and future projects.

GUARANTEED PERFORMANCE

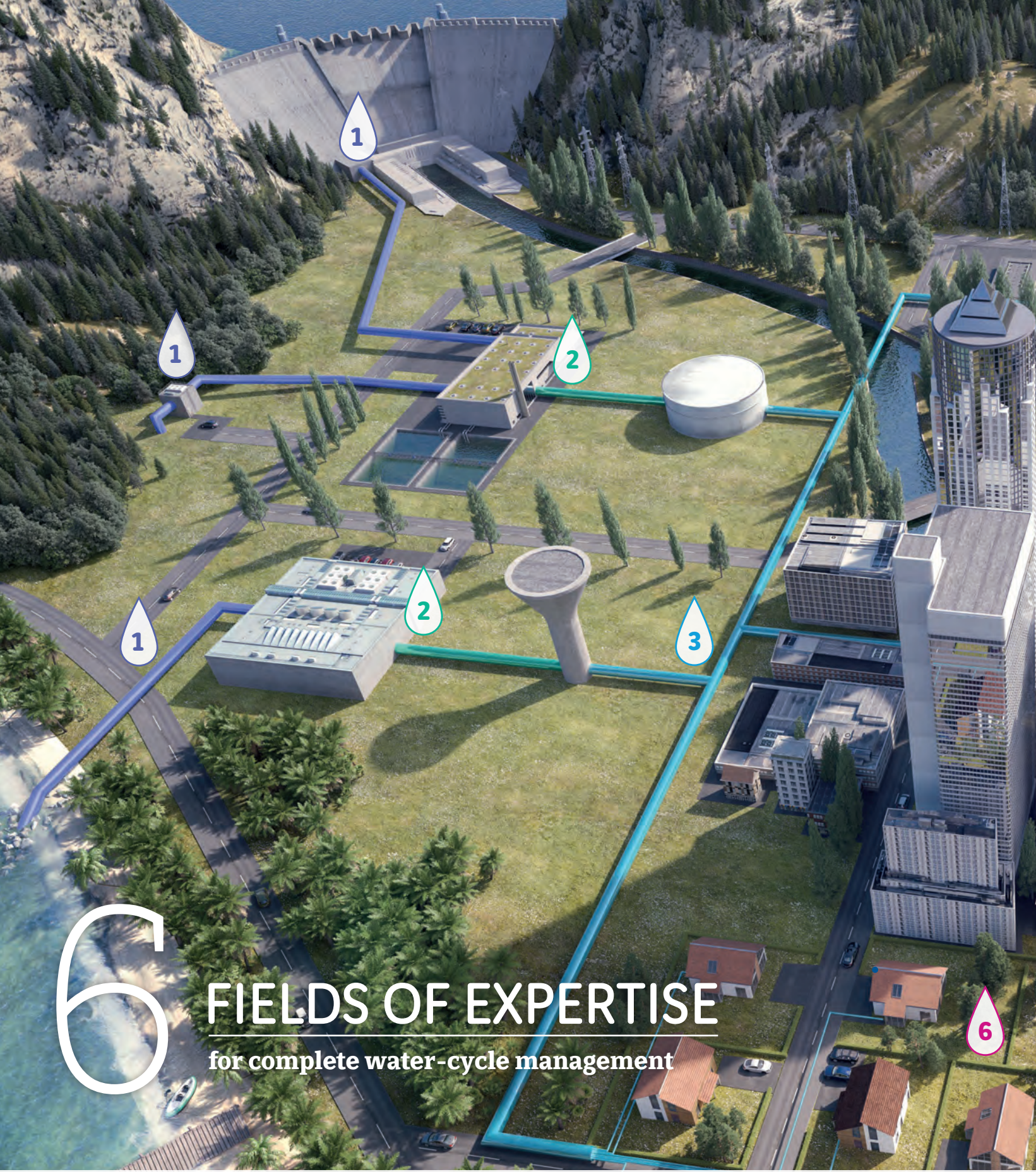
International Water Works undertakes to provide its public, private and institutional clients with **infrastructures and solutions that meet their needs** and deliver the expected technical and financial performance, while satisfying **quality requirements and international environmental standards.**

TECHNICAL AND FINANCIAL ENGINEERING

CONSTRUCTION & COMMISSIONING

OPERATION

MAINTENANCE



6

FIELDS OF EXPERTISE

for complete water-cycle management

1

RAW WATER
CATCHMENT & STORAGE

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DRINKING WATER
PRODUCTION

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& DISTRIBUTION

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RAW WATER CATCHMENT & STORAGE

INTERNATIONAL WATER WORKS' KNOW-HOW AND TECHNICAL SOLUTIONS ALLOW FOR EFFICIENT WATER MANAGEMENT TO MEET DRINKING-WATER AND IRRIGATION NEEDS.



▲ Wadi Dayqah Dam in Oman.



▲ Hope River intake structure in Jamaica.

The capacity to collect and transport water safely and cost-effectively has become a major issue due to climate change, increasing demand for drinking water and steadily growing irrigation needs.

Our full range of expert skills allows us to respond to these diverse requirements by providing:

- **infrastructure design and construction,**
- **electrical and mechanical equipment supply and installation,**
- **maintenance and optimisation of existing structures.**

Our extensive track record of **designing and building various types of dams** reflects our leading-edge expertise in this field.



Hydroplus®, our specialised subsidiary, can **optimise your spillways** by installing **fusegates**, which increases your dam's storage capacity and provides enhanced safety in the event of severe flooding.

We can also implement **innovative intake systems** to collect surface water reliably and cost-effectively.

In addition, we design and build a full range of **water-storage solutions.**

INCREASING THE CAPACITY OF THE FRANÇA DAM



Following the severe drought of 2012, the Brazilian state of Bahia opted for the fusegate technology in efforts to boost the capacity of the França Dam by 7 million cubic metres (a 30% increase). Hydroplus® delivered this turnkey project, which included design, preparatory works

◀ França Dam in Brazil.

and equipment supply and installation, in 10 months. As a result, the local population has since been spared the hardships of water shortage. In addition, the state of Bahia has entrusted further similar mandates to Hydroplus®.

DRINKING WATER PRODUCTION

INTERNATIONAL WATER WORKS IS A FULL-SERVICE LEAD CONTRACTOR THAT DESIGNS AND BUILDS DRINKING WATER PRODUCTION PLANTS THAT TREAT ALL TYPES OF RAW WATER. WE PROVIDE SOLUTIONS IN RESPONSE TO WATER-RELATED PUBLIC HEALTH CHALLENGES.



▲ Niroth Water Treatment Plant, Phnom Penh, Cambodia.

Increasing demand for high-quality, reliable drinking-water production systems and the deterioration of water resources have led us to develop **increasingly efficient, dependable and cost-efficient water treatment processes.**

Thanks to our full range of processes, we can **treat all types of raw water**, including underground water, surface water from dams, lakes and rivers, and seawater.

As France's sole full-service water-treatment lead contractor, we design and build facilities and provide civil engineering services on projects customised to meet specific client needs.



▲ Constant Spring Water Treatment Plant, Kingston, Jamaica.

Our expertise extends to all **conventional processes**, such as decantation, filtration and chlorination, as well as **high-tech solutions**, including activated carbon reactors (Carbosogea®) and ultrafiltration membranes (MBV Pure™) that enable our clients to achieve their objectives.

CARBOSOGEA®: ELIMINATING ORGANIC MICROPOLLUTANTS



Carbosogea®, which was developed by our teams, uses powdered activated carbon to eliminate unwanted substances from water such as pesticides, fertilisers and residues of medicinal products.

◀ Finfarine Water Treatment Plant, France.

Carbosogea® features multiple benefits: it is highly reactive, consumes little energy, uses easily obtainable powdered activated carbon, and is simple to operate.

PUMPING, TRANSFER & DISTRIBUTION

PUMPING AND TRANSFER PROJECTS – WHETHER DESIGNED FOR IRRIGATION OR DRINKING WATER SUPPLY – ARE CRUCIAL TO OPERATION OF WATER NETWORKS. **INTERNATIONAL WATER WORKS HAS THE REQUIRED EXPERTISE TO BUILD PUMPING AND TRANSFER INFRASTRUCTURE.**



▲ Drinking water transfer network in Djibouti.



▲ Kantale Pumping Station, Trincomalee, Sri Lanka.

Our specialised know-how, skill sets and experience allow us to undertake all types of turnkey **pumping projects in response to our clients' specific technical requirements (flow and pressure).**

We install **pipes of all diameters and materials** (including ductile iron, HDPE, PVC, GRP and steel) and employ appropriate **pipe-laying methods** (open trench, pipe jacking, microtunnelling).

We **build and upgrade distribution networks**, from the production plant through the domestic connections, along with related facilities such as pumping stations, storage tanks and water towers.

Thanks to our subsidiary **WMI**'s expertise in unaccounted for water reduction, leak detection, meter optimisation, network zoning and modeling and customer management, we can improve the performance of existing water supply networks.



AL GARDABIYA & ASSDADA PUMPING STATIONS



As part of the Great Man-Made River project in Libya, which was designed to develop a large-scale irrigation and drinking water distribution network, we built two pumping stations and a regulating system near the country's coast-

line. Each station has a capacity of 1 million cubic metres a day. We also installed high-capacity surge-control systems to protect piping and pumps.

◀ Al Gardabiya-Assdada pumping stations in Libya.

WASTEWATER COLLECTION & TRANSFER

SANITATION IS A PRIORITY FOR CLIENTS CONCERNED WITH PROTECTING PUBLIC HEALTH, THE ENVIRONMENT AND QUALITY OF LIFE. **INTERNATIONAL WATER WORKS PROVIDES CLIENTS WITH HIGH-QUALITY DESIGN, CONSTRUCTION AND REHABILITATION OF SANITATION NETWORKS** – HOWEVER COMPLEX AND TECHNICALLY CHALLENGING THEIR PROJECTS MAY BE.



▲ Doha North Pumping Station (PS70), Qatar.

Wastewater collection and transfer are critical for the preservation of oceans, lakes, rivers and aquifers. **Local geography, available financial resources and community requirements** are all considerations that must be factored into wastewater collection and transfer infrastructure projects.

We possess the **required expertise and skill sets for sanitation network design, construction, rehabilitation and maintenance.**

We leverage this expertise on both **small and large-scale infrastructure** projects.

More specifically, we are experts at **installing wastewater collectors and transfer pipelines**, including gravity and pressurised systems by using conventional techniques or trenchless methods such as pipe-jacking, microtunnelling and tunnelling.



▲ Wastewater-transfer network in the Dominican Republic.

DOHA NORTH PUMPING STATION (PS70): HEAVY-DUTY PERFORMANCE



Pumping station PS70, which is located 25 kilometres from Doha, Qatar, has a flow capacity of 680,000 cubic metres per day, making it the largest facility of its kind in the Middle East. The contract covered the design, construction and commissioning of a screen shaft, a pump shaft,

a forwarding station, odour-removal technology and the pumping station's management system. As part of the project, 45 kilometres of ductile iron pumping mains (1,600 millimetres diameter) were implemented.

◀ Pumping mains, Doha North Pumping station (PS70), Qatar.

WASTEWATER TREATMENT

INTERNATIONAL WATER WORKS PROVIDES A FULL RANGE OF PROCESSES AND SOLUTIONS FOR WASTEWATER AND STORMWATER TREATMENT, THEREBY ENSURING THAT DISCHARGED WATER MEETS ENVIRONMENTAL STANDARDS. DESIGNING AND BUILDING EFFICIENT PLANTS WITH A LIMITED ENVIRONMENTAL FOOTPRINT IS ONE OF OUR PRIORITIES.



▲ Brussels South wastewater treatment plant in Belgium.



▲ Campo Dell'Oro wastewater treatment plant in Ajaccio, Corsica, France.

As France's sole full-service wastewater and stormwater treatment lead contractor, we develop and provide a full and effective range of products and processes.

We have a long track record of developing conventional treatment plants (aerated sludge, clarification).

We have also developed **new solutions in response to current and emerging environmental challenges**, including MBBR – moving bed biofilm reactors (R3F™) and technologies enabling the targeted re-use of treated water.

In addition, our lifecycle-based **EcoSave® approach** ensures that we deliver facilities with **low environmental impact and optimised operating capacity.**

In response to technical problems, our **design department** provides specific and appropriate solutions for optimal effectiveness and performance.

RE-USE OF TREATED WATER: A FORWARD-LOOKING SOLUTION IN RESPONSE TO CLIMATE CHANGE



▲ Re-use facility in Cherbourg, France.

We provide an array of solutions for the targeted re-use of treated effluent, including irrigation for golf courses and various industrial applications. Re-use solutions also encompass the full treatment of all plant flows by membrane bioreactors and targeted tertiary treatment of all or partial flows (fine screening, UV disinfection, membrane skid).

NON REVENUE WATER REDUCTION & SMART NETWORKS

THROUGH EFFECTIVE **ENGINEERING SOLUTIONS**, INTERNATIONAL WATER WORKS DEVELOPS AND DEPLOYS **SMART NETWORKS** IN ORDER TO OPTIMISE THE MANAGEMENT OF DRINKING WATER AND SANITATION SYSTEMS.



▲ Network zoning and pressure regulation activities in Jamaica.



▲ GIS and leak-detection project in Myanmar.

In conjunction with our subsidiary **WMI**, we provide **modular diagnostics, optimisation and performance-management solutions** for water and sanitation networks.



Our services range all the way from **technical assistance to turnkey projects**.

We marshal our know-how and appropriate available technologies to **improve network performance**. The ability to reduce unbilled water use, locate leaks, and optimise pressure, network zoning, modeling, metering and customer management have made WMI a leader in its field.

Working closely with water network operators, **WMI establishes appropriate data retrieval, processing and analysis solutions**. On all projects, priority is given to solutions that are compatible with systems already in place, thereby enabling seamless communication and interoperability. In addition, decision-making processes are built in so as to ensure **dynamic and effective operational management**.

Thanks to smart network management, we foster **greater safety and reliability and more effective decision-making and operations**. We provide our **clients with better service** and help them achieve **optimised environmental and financial performance**.

SMART NETWORKS: IMPROVED NETWORK PERFORMANCE THROUGH INTELLIGENT APPLICATIONS



Smart networks combine constant control over facilities (SCADA), smart metering and asset management. The monitoring of production (via GSM/GPRS) and consumption values (via radio, fixed and mobile systems, AMR/AMI) and real-time detection of leaks optimise physical and financial performance, reduce power

consumption and provide better information to clients, including leak and overconsumption alerts, and daily readings.

KEY FIGURES

RAW WATER CATCHMENT & STORAGE

230 MILLION M³

INCREASE IN THE STORAGE CAPACITY
OF EXISTING DAMS

PUMPING, TRANSFER & DISTRIBUTION

300 KM

OF DRINKING WATER
SUPPLY NETWORKS

DRINKING WATER PRODUCTION

TREATMENT PLANTS THAT PRODUCE

1 MILLION M³ PER DAY

OF DRINKING WATER

WASTEWATER COLLECTION & TRANSFER

300 KM

OF NETWORKS AND TUNNELS THAT COLLECT
AND TRANSFER WASTE-AND STORMWATER

WASTEWATER TREATMENT

PLANTS THAT TREAT EFFLUENTS FOR:

2.5 MILLION

PEOPLE

REDUCTION OF NON REVENUE WATER & SMART NETWORKS

5,000 KM

OF NETWORKS INSPECTED

200,000

WATER METERS INSTALLED







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