

A child is running through a water fountain, with water spraying upwards. The scene is overlaid with a grid pattern. The text 'advanced solutions for water networks' is prominently displayed in white and green.

advanced solutions for water networks

A 360° Approach
To Optimize
Network Efficiency

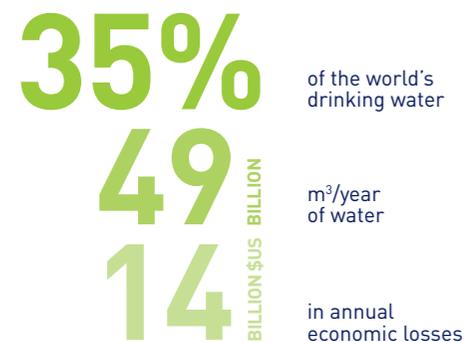
ready for the resource revolution



suez

non-revenue water, a global challenge

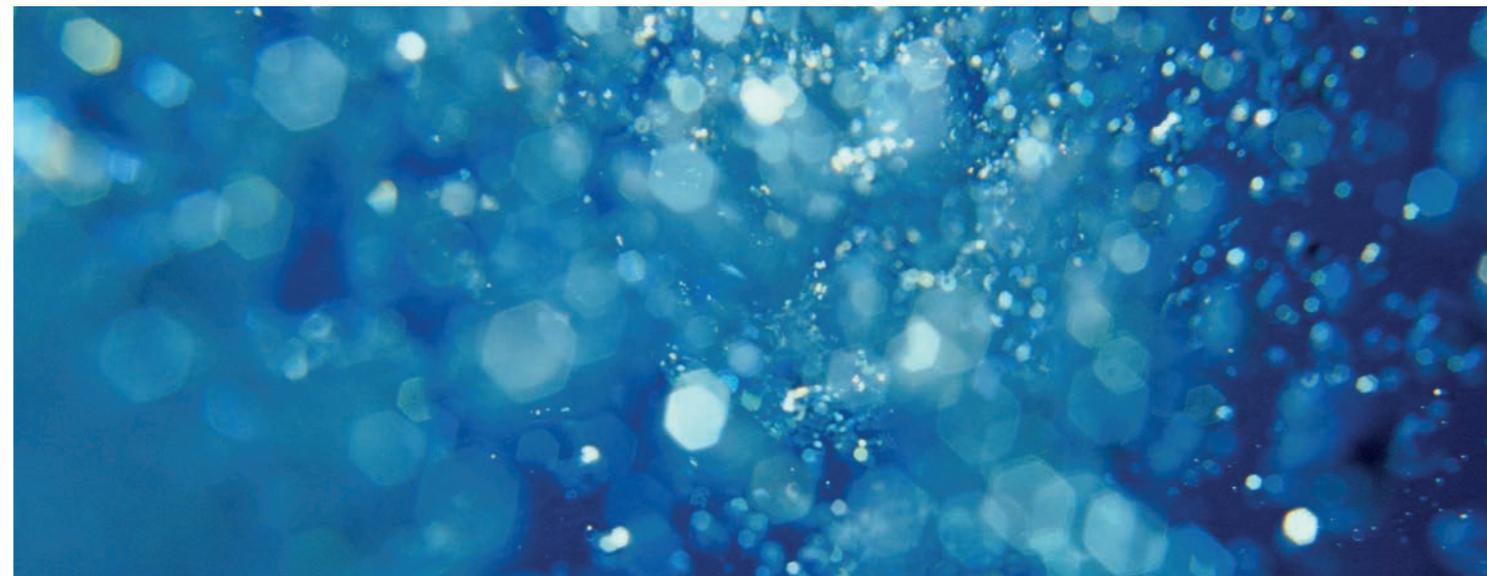
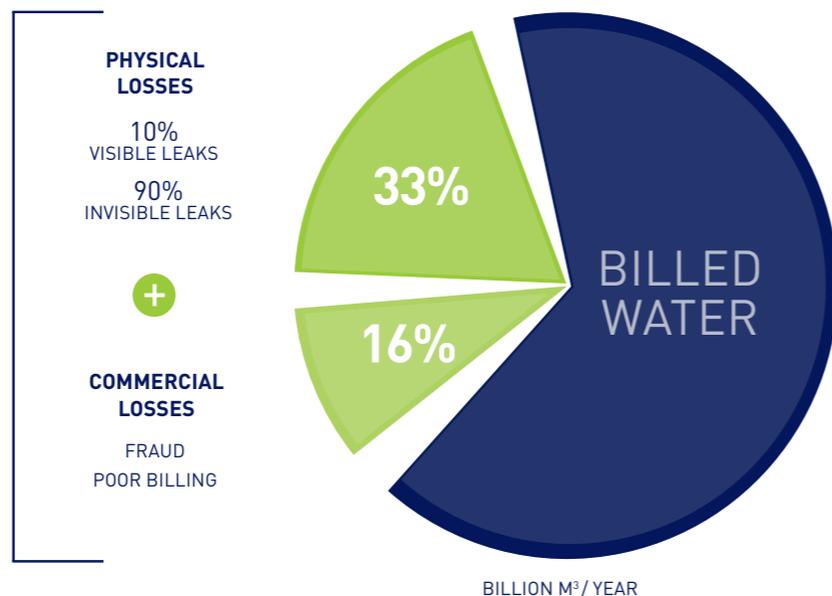
TODAY NON-REVENUE WATER REPRESENTS:



Non-Revenue Water refers to water supplied to the system but not billed to customers. It has become a global issue that can only be resolved locally. To reduce loss and optimize drinking water distribution, the full value cycle must be taken into consideration: from diagnosis to the efficient management of leaks, assets and billing.

That's why SUEZ has developed its **ADVANCED SOLUTIONS FOR WATER NETWORKS**.

Building upon its long term partnerships with local authorities around the world, SUEZ plans and implements adapted solutions to optimize the performance of your drinking water distribution network.



IMPROVE SERVICE QUALITY & CUSTOMER SATISFACTION

- ▶ **Guarantee** continuous water supply and high reactivity in case of leaks
- ▶ **Provide** your clients with accurate billing and responsive customer service
- ▶ **Ensure** water quality and safety by efficiently monitoring your network

REDUCE EXPENDITURES & INCREASE REVENUES

- ▶ **Reduce** your operational expenditures and **increase** water service revenues
- ▶ **Extend** the life of your network with optimized operations and proactive maintenance
- ▶ **Avoid** the construction of additional water production facilities
- ▶ **Optimize** your investments by prioritizing your asset renewal

CONSERVE NATURAL RESOURCES

- ▶ **Reduce** wasted water
- ▶ **Save** energy and **lower** your carbon footprint

advanced solutions to achieve your goals

a 360° approach to optimize network efficiency

ADVANCED SOLUTIONS FOR WATER NETWORKS:
An integrated solution to optimize your water network performance from a world-class operator

Based on our operational experience, SUEZ has developed a suite of 5 **flexible and complementary solutions**. Our service offer can be **customized** to meet your objectives.

ASSESSMENT

DIAGNOSIS & STRATEGY

Assessment, planning and coordination of Non-Revenue Water recovery

IMPLEMENTATION & OPERATION

NETWORK MANAGEMENT

Flow, pressure and water quality day-to-day management

LEAK MANAGEMENT

Effective leak detection and repair on water network

ASSET MANAGEMENT

Sustainable management of water network assets

CUSTOMER MANAGEMENT

Precise measurement and billing of water consumption

PHYSICAL LOSSES

COMMERCIAL LOSSES

KNOW-HOW TRANSFER

Operational expertise available to local staff

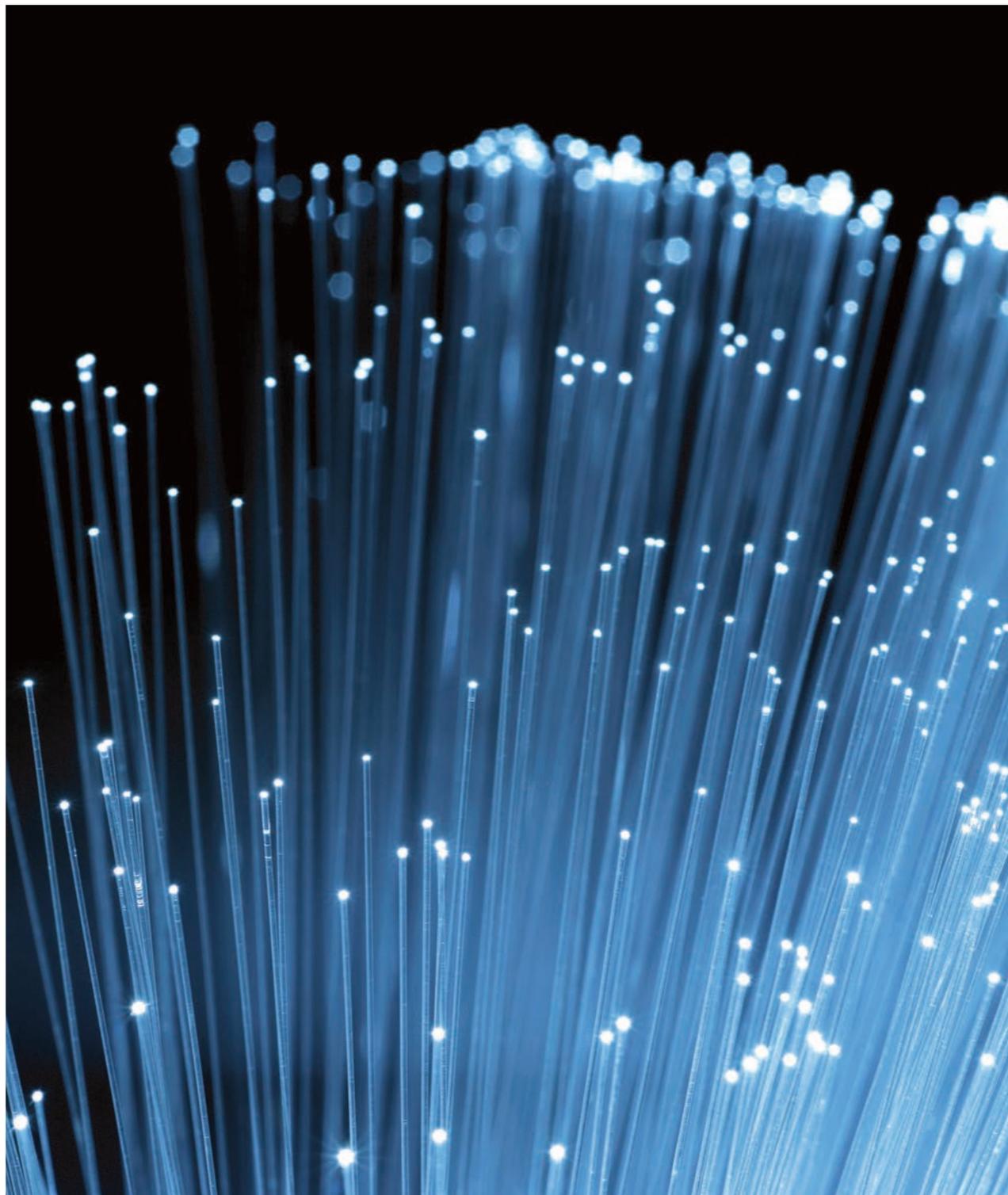
A 360° APPROACH TO OPTIMIZE NETWORK EFFICIENCY

AQUADVANCED™

AN INTEGRATED TOOL
TO MANAGE WATER
NETWORKS PERFORMANCE

Our **AQUADVANCED™** control tool handles all key dimensions of water network management. It continuously monitors and improves network performance in real time, through:

- ▶ **General view of network performance** with a **user-friendly dashboard**
- ▶ **Event management** to rapidly **detect anomalies** and **identify risks of failure**
- ▶ **Reporting** and **in-depth analysis** of water network performance



+
our
operational
expertise
means you
benefit
from:

- ▶ An **integrated approach** coupled with 130 years of experience in water management and 'day-to-day' operation
- ▶ A **wide range of tools** and their tailored implementation taking into account your local conditions
- ▶ **Cutting-edge technologies**
- ▶ Our proven ability to **transfer knowledge** to your team
- ▶ Our experience in **coordinating** the utility's different units (management, technical and financial)

DIAGNOSIS & STRATEGY

define a customized action plan through in-depth analysis

SUEZ's proven methodology helps reduce Non-Revenue Water through support in the assessment, planning, coordination and implementation of your action plan

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OPERATIONAL ASSESSMENT OF LOSSES & ADAPTED ACTION PLAN

- ▶ **Quantify** physical, commercial and metering losses and **identify** causes, using operational data and field investigation
- ▶ **Forecast** water volumes that can be recovered
- ▶ **Define** an action plan, integrating forecasts and realistic objectives, to achieve a high return on investment and **optimize** both CAPEX and OPEX

PROJECT MANAGEMENT

- ▶ **Benefit** from our technical and managerial expertise to ensure the effective and coordinated implementation of the action plan
- ▶ **Pilot** performance with regularly collected and analyzed data
- ▶ **Steer** governance across the action plan

AQUACIRCLE™ DECISION SUPPORT SOFTWARE

- ▶ Models your actual water losses, forecasts Non-Revenue Water reduction, establishes and follows-up the action plan.



AQUADANCED™
COMPATIBLE

BENEFITS

- ▶ **Prioritize** actions to be taken
- ▶ **Increase** profitability
- ▶ **Pilot** water service performance
- ▶ **Preserve** water resources

REFERENCES

SPAIN, FRANCE, AUSTRALIA,
ALGERIA, MEXICO, MOROCCO, CHINA

Implemented on over 150,000 km of network



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MACAU - CHINA

<10% ^{NRW}

in 2012 (vs. 18% in 1985)

Improvement of metering and account management:

- ▶ Return on investment in **2-3 years**

NETWORK MANAGEMENT

make your network 'smart' for real-time operations

SUEZ's solution optimizes the day-to-day management of your water network by monitoring flow, pressure and water quality in real time

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PERFORMANCE ANALYSIS & NETWORK RESTRUCTURING

- ▶ **Understand** flows in your water network through GIS analysis and hydraulic modeling
- ▶ **Design** and **implement** the ideal sectorization to better control your network

SMART NETWORK EQUIPMENT

- ▶ **Install** advanced flow, pressure, acoustic and water quality sensors for high quality data transmission
- ▶ **Implement** and **operate** pressure management efficiently, to match actual needs with specific pressure regulation valves linked to Information Regulation System
- ▶ **Turn** your existing system into a 'smart' network, powered by AQUADVANCED™

REAL-TIME NETWORK MONITORING & MANAGEMENT

- ▶ **Get** an overall view of your network in real time including possible anomalies and means of optimization (leakage location, energy)
- ▶ **Take** immediate action from a distance thanks to flow and pressure regulators connected to the IT system

AQUADVANCED™ REAL-TIME DATA MANAGEMENT

- ▶ Monitors and manages sectors equipped with sensors
- ▶ Collects and centralizes data
- ▶ Manages and optimizes water network performance in real time
- ▶ Integrates Customer Relationship Management and workforce management systems



BENEFITS

- ▶ **Save** water and energy
- ▶ **Extend** the life of your network
- ▶ **Guarantee** water quality
- ▶ **Detect** and **repair** leaks quickly

REFERENCES



CASABLANCA – MOROCCO

5 MM/YEAR

of water savings through dynamic pressure regulation

- ▶ Real-time monitoring through the installation of **80 pressure sensors** and **200 flow sensors**
- ▶ Better network performance: **from 71.5% (2009) to 75.5% (2011)**

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LEAK MANAGEMENT

improve detection and make repair sustainable

SUEZ's solution leverages innovative technologies to efficiently detect and repair leaks in your water network

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EFFICIENT & APPROPRIATE LEAK DETECTION SYSTEMS

- ▶ **Implement** optimal leak detection tools and location techniques based on your specific local needs
- ▶ **Benefit** from our latest technologies such as tracer gases and acoustic systems to limit nuisance to surrounding area and population

EFFECTIVE & LONG LASTING LEAK REPAIRS

- ▶ **Implement** the right material and repair processes
- ▶ **Train** the repair team
- ▶ **Manage, coordinate** and **map** repair works with our AQUADVANCED™ and GIS AQUA software tools

iDROLOC™ DETECTION TECHNIQUE

- ▶ Detects leaks with a tracer gas (helium or hydrogen), that has no impact on either water quality or health. This gas is injected into the water pipe and comes out of it in case of leak. Very small holes are then drilled above the pipe, so that gas can escape through impermeable ground layers. Thus, unusual concentrations of tracer gas can be detected from the surface.

AQUADVANCED™
COMPATIBLE



BENEFITS

- ▶ **Save** water resources by reducing leaks
- ▶ **Improve** customer satisfaction
- ▶ **Facilitate** repairs and **reduce** nuisance
- ▶ **Guarantee** lasting repairs

REFERENCES



JEDDAH – SAUDI ARABIA

2,500 INVISIBLE
LEAKS/YEAR

detected and repaired

- ▶ **16,000 visible leaks/year:** each repaired in less than 24 hours and recorded on the GIS
- ▶ Water and money savings: **16.3 Mm³ saved in 2011 (more than €12M)**
- ▶ **Higher customer satisfaction** and improved perception of the Public Water Service

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ASSET MANAGEMENT

understand network condition for optimized investment

SUEZ's solution prioritizes water network renewal and rehabilitation to optimize medium and long-term investment

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NETWORK CONDITION ASSESSMENT & REHABILITATION PLAN

- ▶ **Evaluate** your network condition using available data and innovative proprietary technologies (Scanner, Ciclope™)
- ▶ **Establish** a detailed and prioritized investment plan to better manage your investments

OPTIMAL WORKS MANAGEMENT

- ▶ **Select** the most adapted materials and techniques with which to renew your network while minimizing the impact on the surrounding environment
- ▶ **Select** and **train** field teams to guarantee high work quality
- ▶ **Reduce** nuisance with our innovative renewal and rehabilitation technologies, such as trenchless works or ice pigging

PREVOIR™ DECISION SUPPORT TOOL FOR ASSETS RENEWAL

- ▶ Helps you to optimize your investments using predictive models of pipe ageing. Based on these predictions and depending on your investment capacity, it indicates where and when to replace pipes over the next 5 to 20 years, thus extending network life.



AQUADVANCED™
COMPATIBLE

BENEFITS

- ▶ **Optimize** your investment
- ▶ **Anticipate** the network renewal
- ▶ **Extend** your facilities service life
- ▶ **Reduce** nuisance due to network repairs

REFERENCES



BORDEAUX - FRANCE

-40% IN PIPE BURSTS

(2,000 breakages in 2012 vs. 4,300 in 2005)

- ▶ Improved network quality and **significant reduction** in emergency works

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CUSTOMER MANAGEMENT

increase revenues and customer satisfaction

SUEZ's solution accurately measures and bills water consumption to increase your revenues and customer satisfaction



WATER METERING IMPROVEMENT

- ▶ **Gather** and **upgrade** client information through customer census to guarantee fair billing and prevent fraud
- ▶ **Select** the right meters and appropriate installation techniques to prevent fraud
- ▶ **Identify** meters requiring replacement and **prioritize** their renewal
- ▶ **Implement** our remote and real-time automated water consumption metering technology for higher reliability (Smart Meter Reading)

EFFICIENT CUSTOMER SERVICE MANAGEMENT

- ▶ **Optimize** your customer services management through our tools and expertise
- ▶ **Improve** customer satisfaction with our fair and modern Smart Metering services such as alerts in case of suspected leaks and regular billing based on real consumption

AQUACIS™ CUSTOMER RELATIONSHIP MANAGEMENT SOFTWARE

- ▶ Centralizes all client data and customer claims so as to manage them efficiently. The software is linked to a field work management tool to optimize operations coordination.



BENEFITS

- ▶ **Grow** revenues
- ▶ **Increase** customer satisfaction
- ▶ **Reduce** Non-Revenue Water volumes
- ▶ **Raise** the level of your meters' reliability

REFERENCES



CARTAGENA – COLOMBIA

96.6% COLLECTION RATE
in 2011 (vs. 69% in 1995)

- ▶ from **2** payment centers in **1995** to **96** in **2011**
- ▶ Higher meter coverage: from **58.6%** of the population in **1995** to **99.67%** in **2011**
- ▶ Increase in the number of legal users: from **25%** of low-income neighborhoods in **1995** to **80%** in **2011**



tracking map

01 **DIAGNOSIS & STRATEGY** ASSESSMENT, PLANNING AND COORDINATION OF NON-REVENUE WATER RECOVERY

- ▶ Operational assessment of losses & adapted action plan
- ▶ Project Management

02 **NETWORK MANAGEMENT** FLOW, PRESSURE AND WATER QUALITY DAY-TO-DAY MANAGEMENT

- ▶ Performance analysis & network restructuring
- ▶ Smart network equipment
- ▶ Real-time network monitoring & management

03 **LEAK MANAGEMENT** EFFECTIVE LEAK DETECTION AND REPAIR ON WATER NETWORK

- ▶ Efficient & appropriate leak detection systems
- ▶ Effective & long lasting leak repairs

04 **ASSET MANAGEMENT** SUSTAINABLE MANAGEMENT OF WATER NETWORK ASSETS

- ▶ Network condition assessment & rehabilitation plan
- ▶ Optimal works management

05 **CUSTOMER MANAGEMENT** PRECISE MEASUREMENT AND BILLING OF WATER CONSUMPTION

- ▶ Water metering improvement
- ▶ Efficient Customer Service Management

know-how transfer sharing our expertise

SUEZ makes its operational expertise and know-how available to local staff

For years, SUEZ's worldwide research and technical centers have been pooling their water cycle expertise. Supported by the Group's expert networks and our track record of successful implementations, SUEZ has developed an innovative and comprehensive approach for transferring know-how to local operations.

SUEZ helps you to achieve high degree of institutional competency and full autonomy.

In accordance with your specific needs, we address the elementary core business processes and help water operations improve their efficiency. We assist you in defining, implementing and monitoring tailor-made action plans for the effective transfer of knowledge to your local staff.



BENEFITS

- ▶ **Achieve** a high degree of institutional competency and full autonomy
- ▶ **Transfer** pertinent know-how and expertise to local staff
- ▶ **Improve** operational efficiency

REFERENCES

- 400** researchers and experts across the world
- ▶ **6** research centers and over **65** research programs
- ▶ More than **120** research partners



SUEZ key figures

A GLOBAL LEADER IN WATER AND WASTE MANAGEMENT SERVICES

OPERATING IN MORE THAN 70 COUNTRIES ON 5 CONTINENTS



a unique profile

- ▶ Operator
- ▶ Customized & innovative solutions developer
- ▶ Solution integrator

they trust us

Greater Paris Area (France), Bordeaux (France), Dijon (France), Barcelona (Spain), Bristol (UK), Casablanca (Morocco), Algiers (Algeria), Oran (Algeria), Jeddah (Saudi Arabia), Santiago (Chile), Macau (China), Chongqing (China), New Delhi (India), Mumbai (India), Adelaide (Australia), Perth (Australia), Cartagena (Colombia)

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