

2016
Activity Report

« Seureca is the women and men who put their expertise and passion for engineering at the service of improving the quality of life and protecting the environment day by day. »



**Interview with
Patrice Fonlladosa**
Chairman of Seureca

Seureca is Veolia's integrated Engineering Division.

What is its added value in the development of the Group's strategy?

Seureca is a multi-disciplinary design and engineering office that places innovation and performance at the heart of its missions, giving it a strategic position in the Veolia Group. Its missions, which are transversal in nature, are at the crossroads of the Group's geographical areas and activities. Seureca has built bridges between business lines and fostered synergies to provide global technical and innovative solutions resulting in a better combination of expertise serving customer performance. As a consultant and expert working with local authorities, public authorities, and industry, it promotes excellence and, as such, is fully committed to the Group's projects.

How does this integrated division, which encompasses various companies, teams, and skills, work?

The engineering division is made up of very reactive mobile units that can respond especially quickly at the request of customers. A small, efficient, and agile management team ensures coordination and that objectives (quality, deadlines, cost) are always met to guarantee the performance of its customers. We also work closely with Veolia's teams to carry out projects. Our role has evolved from advice to actual participation, including the related risks, giving teams more responsibility and allowing them to commit to common objectives.

What is the outlook for the next few years?

Seureca is the women and men who put their expertise and passion for engineering at the service of the environment. They are driven by a common goal: excellence. The objectives for the future are to continue to develop and increase the share of activity in the energy and waste sectors by positioning ourselves on new geographical areas while respecting the economic balance that is essential to growth. Within the company, we will continue to strive to provide the best service to Veolia's business units while increasing the share of our technical assistance contracts with other customers.

PREPARING FOR TOMORROW

By **Philippe Bloch**,
Managing Director.



Veolia's new
headquarters
in Aubervilliers.



2016: A YEAR RICH WITH PROJECTS

2016 was a year full of interesting projects and a number of new contracts were obtained, consolidating our turnover above the threshold of 30 million Euros. The year was notably marked by:

- Strong growth in Africa: three major technical assistance contracts in Zambia, several projects in Kenya, and further development in Central and West Africa (Lusophone countries, Gabon, Cameroon);
- A return to substantial levels of activity in the CIS (Commonwealth of Independent States) of which the eight contracts in Kazakhstan are a good example;
- Our specialized subsidiaries, who also significantly contributed to this great commercial success.

ORGANIZATIONAL CHANGES DRIVING NEW SYNERGIES

After sixty years of existence, Setude, our subsidiary which undertook an engineering activity in France, was merged with Seureca in July 2016.

This enlarges our range of offerings to customers in France, focused on operational support and technical and strategic assistance.

One other key event in this year marked a change: our head office is now located in Aubervilliers, on the outskirts of Paris, to where over a hundred of Seureca's employees moved in November. By integrating Veolia's brand-new headquarters, new synergies and close working relationships have been created between many of the Group's employees, contributing collectively to the construction of the One Veolia.

DEVELOPMENT AND INNOVATION WILL CONTINUE IN 2017

2017 will be an important year commercially. I would like to accelerate our development in Asia, Latin America, and Europe while maintaining our activity in the Middle East despite a difficult context. Our strong presence in Africa should give us the opportunity to meet the continent's immediate needs to develop energy projects. With a population of 1.2 billion, Africa currently uses only 3% of the electricity produced worldwide. Finally, our technical assistance business line, which today represents a major proportion of our turnover, is expected to continue the consequential growth observed over the last two years and the operational support provided to Veolia's operations will increase.

We are also implementing an innovation unit to review the numerous opportunities to improve our performance offered by new tools and technologies, such as drones, connected tablets mapping, and mobile prepayment.

Other avenues are currently being developed, such as the *SQAI Walker* tool, which will allow our subsidiary specialized in sanitary engineering to digitize its audit and diagnostic services. Another of our subsidiaries, specialized in water treatment, is marketing the *FrogBox*® with Veolia: this technology analyzes water quality to detect the presence of endocrine disruptors.

2017 is promising to be a good year for Seureca!

ENVIRONMENTAL ENGINEERING SERVING OUR CUSTOMERS

The Seureca brand groups together four companies, dedicated to sustainably improve the performance of our customers:

- Seureca, a consulting engineering firm specialized in the management of resources, in the fields of water, energy, and waste.
- 3 specialized subsidiaries:
 DESL: energy efficiency, renewable energy, waste-to-energy,
 EPAS: industrial wastewater and process water treatment,
 OFIS: environmental performance and health security in buildings.



A COMPLETE OUTLINE OF OUR ACTIVITIES:



OUR MAIN CLIENTS:

PUBLIC SECTOR



**INTERNATIONAL FINANCIAL INSTITUTIONS -
GOVERNMENTS - COMMUNITIES - LOCAL AUTHORITIES**

We assist public stakeholders to help them improve their water, sanitation, energy, and waste infrastructure management.

PRIVATE SECTOR



**INDUSTRIES
TERTIARY SECTOR**

We provide services to industry and tertiary sector professionals to help them improve their environmental and sanitary performance, meet regulatory requirements, and optimize costs.

VEOLIA GROUP

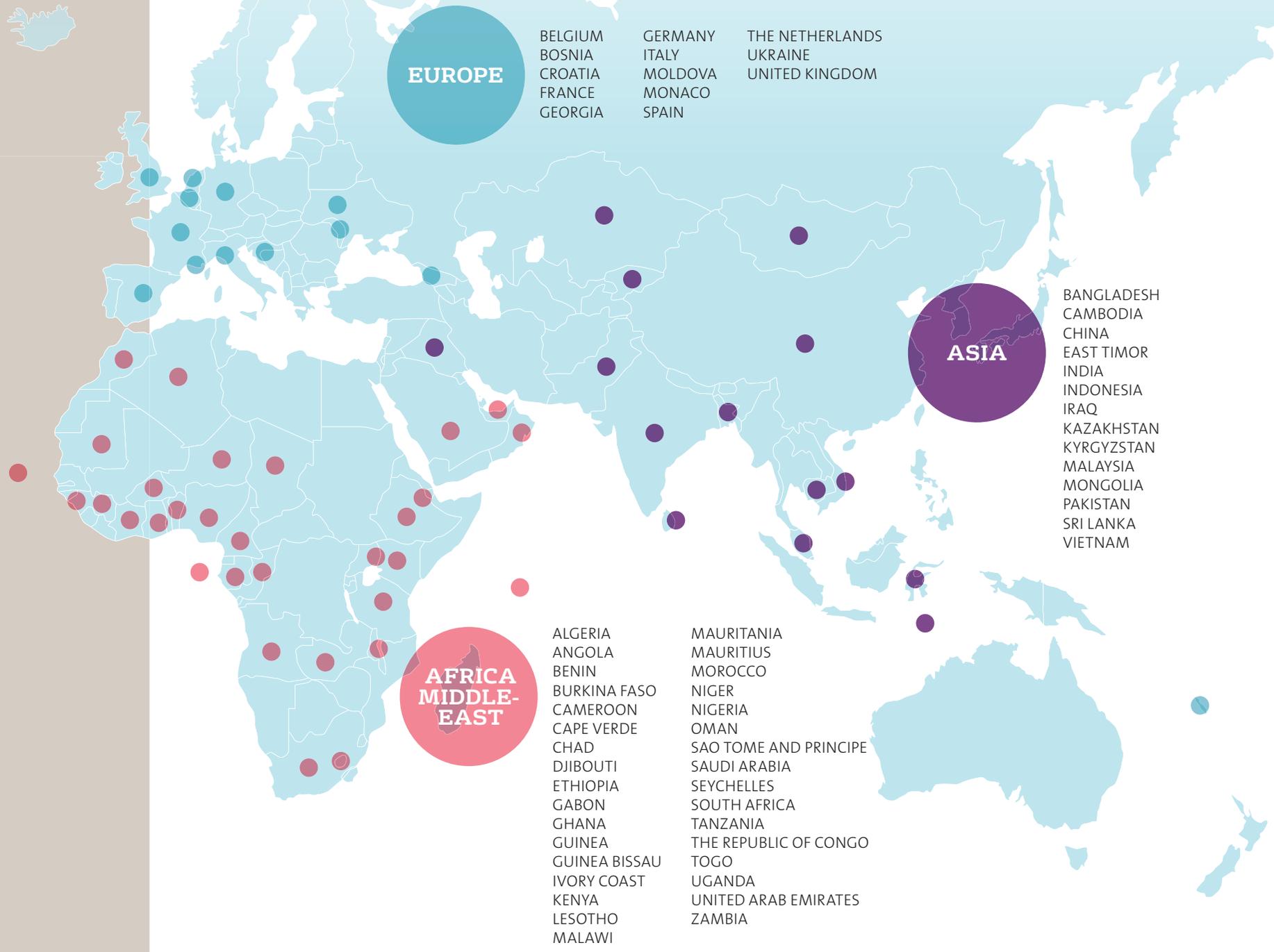


VEOLIA BUSINESS UNITS

Our global network of engineers supports Veolia's business units to help develop new business and improve operational performance.

EXPERTISE ON 4 CONTINENTS

Seureca developed environmental solutions in 64 countries around the world.



12 ICONIC PROJECTS IN 2016

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Bogor Indonesia

Preliminary feasibility study for an integrated and innovative wastewater management project

The city of Bogor is located in the province of Java, 60 km south of Jakarta. As part of the National Development Plan for Access to Sanitation (objective: 100% by 2019), a wastewater master plan was prepared in 2011. Feasibility and detailed design studies were then carried out between 2012 and 2015 for the first phase of this master plan. Seureca was entrusted with analyzing and validating the studies carried out.

5 experts mobilized **160,000** persons concerned **18 months** project duration

OUR EXPERTISE

- Development of a strategy for the phased development of a collective wastewater system in a dense urban environment with rugged topography.
- Conceptual definition of the main physical characteristics of the wastewater network intended to cover the central area of the city and the preliminary design of the wastewater treatment plant after a comparative analysis of different treatment processes.
- Preliminary costing of investments and operating costs (network and treatment plant) and preparation of the terms of reference for the detailed economic and financial analysis prior to finalizing the loan agreement between the Indonesian government and the French Development Agency (AFD).
- Preparation of reference documents for the Ministry of Public Works and Housing to assist in the development of similar projects in a number of Indonesian cities.



Ciudad del Plata Uruguay

Urban water management plan and wastewater master plan

Ciudad del Plata is a rapidly developing town with a population of 35,000 near Montevideo, the country's capital. The city's swift development has taken place in a difficult social and physical context, requiring a long-term plan to meet major challenges: protection of the population against flooding during the rainy season and high tides, appropriate wastewater treatment, and securing the production and distribution of drinking water. This urban landscape configuration needed redesigning.

15 experts mobilized **18 months** project duration Financed by the **Inter-American Development Bank**

OUR EXPERTISE

Audit

- Assessment of water resources and urban mobility;
- Assessment of governance;
- Construction of a geographic information system.

Urban water management plan

- Projection of urban and demographic development;
- Definition of objectives and schedule;
- Proposal of a strategy to develop infrastructure and services;
- Study of legal framework;
- Changes to the local planning guidelines.

Master plan and preliminary design

- Formulation, design, analysis, and choice of technical alternatives;
- Estimation of investment and operating costs;
- Implementation schedule and investment program;
- Preparation of infrastructure preliminary design;
- Detailed definition of management system programs, training, and awareness campaigns.



Chişinău Moldova

Energy efficiency
for a district heating network

Termoelectrica, an urban district heating company located in Chişinău, is assisted by Seureca to improve network investment planning and customer service management. This implies changing from a production-driven system to a demand-driven system. A pilot project was developed to study the feasibility and impact of energy efficiency measures: individual building and housing unit control and implementation of individual billing.

4,200
buildings
connected

11%
of energy
savings

Financed
by the
World Bank

OUR EXPERTISE

- Modeling the heating demand until 2030, taking into account various scenarios to quantify the impact of energy efficiency measures on demand trends and economic profitability.
- Recommendations and tools to improve customer service management: contract management, complaints management, communication, billing system.
- Feasibility study including a measurement campaign for the installation of individual controls on vertical pipe systems.
- Customer satisfaction survey to households concerned by the implementation of energy efficiency measures, to predict the impact of the measures on satisfaction.
- Analysis of the impact on demand by installing 300 individual substations: 11% energy savings on average with an increase of up to 40 days in the heating period.
- Balancing networks and optimizing the heat schedule on four buildings resulting in an additional 8% in energy savings.



Culan France

Wastewater system
rehabilitation project

After conducting an audit of its wastewater system and preparing a master plan, the town of Culan (Cher county) entrusts Seureca with the complete project management to implement the works program. The presence of a medieval castle classified as a historical monument nearby led to particularly delicate environmental constraints.

6 years
project
duration

**New
wastewater
treatment plant**

Major
**environmental
constraints**

OUR EXPERTISE

Preliminary phase

- Verification and validation of the works program;
- Breakdown of the works into phases that were compatible with the town's financial resources and the requirements of the water police.

Design phase

- Provisional budget, project feasibility in terms of program and site requirements, general layout and quantities, technical solutions, provisional estimate of the cost of works;
- Location of buildings and equipment, operating costs;
- Consultation of contractors;
- Implementation schedule.

Construction phase

- Selection of contractor;
- Control of compliance of working drawings, technical and financial control;
- Control of document compliance, organization of site meetings, verification of itemised statements of account, assistance to the contracting authority;
- Organization of pre-acceptance tests and trials, preparation of reports.



Sur Oman

Technical assistance
for a desalination plant

Sur desalination plant is the largest seawater reverse osmosis plant in the world that is fed entirely by groundwater extracted from beach wells, with a capacity of 83,648 m³/day. Since 2009, the plant has provided the main source of potable water for 2 governorates of Oman, Sharqiyah South and Sharqiyah North. After seven years of operation, the operating company Bahwan Veolia Water (BVW) and Sharqiyah Desalination Company (SDC) sought Seureca's support to prepare for the future by proposing recommendations for the continuous improvement of operating practices and the implementation of targeted plant optimization.

28

beach wells

12

experts mobilized

56

improvement initiatives in two years

OUR EXPERTISE

The underlying principle of the Seureca technical assistance is to roll out the Veolia Group best practices, defined by the Technical and Performance Department, for the benefit of business units worldwide.

Asset management

- Preparation of a Strategic Asset Management Plan as a foundation to develop an ISO 55000 compliant Asset Management System;
- Audit for the implementation of the Veolia Group's best practices.

Information system

- Evaluation of the Supervisory Control And Data Acquisition (SCADA) system;
- Organization and process set-up;
- Recommendations to upgrade the system.

Operations and maintenance

- Feasibility study of several options to secure and enhance the production capacity of the existing plant;
- Baseline study of the beach wells of the plant (structure, running hours, flow rates, water levels).

Treatment

- Feasibility study for on-site treatment of sludge generated by the plan extension.

Firefighting system

- Leak detection on the firefighting system using Helium gas detection method.



Kvemo Kartli Georgia

Waste collection and treatment
improvement program

The Kvemo Kartli region is implementing a plan to upgrade the collection and treatment of solid waste. The program is financed with loans from the European Bank for Reconstruction and Development (EBRD) and Swedish grants. The stakeholders in this project are the Solid Waste Management Corporation Georgia (locally called the SWMCG), which will be building and operating a new regional landfill site compliant with European regulations, and the towns of Marneuli, Bolnisi, Dmanisi, Tetrtskaro, and Tsalka, which will be responsible for collecting and transporting solid waste to the new treatment site. The objective is to improve the collection while requiring residents and businesses to comply with the polluter pays principle. This measure should allow the waste management company and the towns to eventually achieve a balanced budget.

16,000
tons
of waste/year

5
municipalities

220,000
persons
concerned

OUR EXPERTISE

1. Technical support for the municipalities and the SWMCG to implement the financing agreement signed with the EBRD. This support focused, in particular, on defining a pricing policy as well as the calculation of costs and applied prices over twenty years. It also included upgrades, through training, on the environmental, health and safety, and technical components (operation of an environmentally compliant landfill site, including leachate and biogas management).
2. Definition of an action plan and monitoring of its implementation over one year to improve the performance of the SWMCG and cities regarding waste management. This action plan is broken down into various financial, technical, and environmental components.
3. Definition and implementation of a year-long communication/awareness campaign to accompany the changes.



Médipôle de Koutio France

Securing water and air networks

Noumea's new hospital, the Médipôle de Koutio, is an unprecedented project in New Caledonia. This 82,000 m² center, located on a 15-hectare site covers over half of New Caledonia's healthcare offer. Before the arrival of the first patients, the medical center wanted its technical teams and hygiene departments to be accompanied during the trial run phase of the water and air facilities with the objective of preventing any risk of contamination once the new hospital opened to the public.

>100 air handling units
645 beds
40,000 hospitalizations per year

OUR EXPERTISE

Assessment of technical compliance of water and air systems

- Technical health and safety audit with a structural study of water and air facilities and risk analysis by identification of critical points;
- Measurement campaign (temperature, flow, pressure);
- Corrective and preventive actions.

Development of an analytical water and air quality monitoring strategy

- Quality monitoring sampling strategy;
- Water (bacteriological and physicochemical quality) and air (particulate cleanliness and airborne contamination) sampling protocols.

Definition of maintenance and monitoring procedures adapted to each mode of operation of the establishment

- Water and air facility monitoring and reporting of maintenance operations;
- Preventive operating procedures;
- Protocol for securing networks in case of failures;
- Infection prevention in case of work in controlled premises.



Conakry Guinea

Management contract for Guinea's electricity

In 2012, the Guinean government adopted a recovery plan, which is currently being implemented. It intends to sustainably recover the electricity sector in Guinea and, more particularly, Electricité de Guinée (EDG), through the implementation of a 1.3 billion-dollar program to develop thermal and hydroelectric generation assets and networks.

4 years project duration
500,000 persons concerned
30 experts mobilized

OUR EXPERTISE

- Development of a geographic information system (GIS) of the electricity system;
- Modeling and study of the electricity network protection plan;
- Operational diagnosis and maintenance plan for production, transmission, and distribution facilities;
- Program to support the rehabilitation of hydroelectric power plants;
- Development of specifications for a customer survey and a computerized customer management system;
- Strategy and detailed action plan to deploy pre-payment metering and to secure revenues;
- Reorganization of human resources;
- Implementation of a unit for internal and external communication;
- Review of internal control procedures;
- Strategy to improve operational and financial performance;
- Reorganization of the engineering and design office;
- Prime contractor support procedures.



Pepsico Group United Kingdom

Audit and monitoring of the thermophilic anaerobic digester for solid waste treatment

Walkers Crisps is the Pepsico Group's potato chip production unit. It started a thermophilic anaerobic digester with a capacity of approximately 4,500 m³ in early 2016 to recycle organic solid waste (potato chips, peelings, starch) by cogeneration. There were a number of start-up issues resulting in reduced digestion efficiency and partial treatment of available solid waste which impacted cogeneration performance and reliability.

Financed by the customer

Effective digestion
of all solid waste

Cogeneration
more stable

OUR EXPERTISE

Audit, large-scale monitoring, and process optimization

- Facility audit and optimization program;
- Evaluation of the technical database and calculation and interpretation of the most important operational parameters;
- Calculation of energy balance of the digester and the cogeneration unit;
- Assistance in monitoring full-scale results while evaluating the optimization program and adjusting it if necessary;
- Preparation of audit and monitoring reports.

Laboratory research

- Characterization of digestate to complete the database: analyses, microscopic examination of composition, methanogenic activity tests;
- Characterization of biogas composition;
- Characterization of the methanogenic bacterial association by microscopic examination;
- Distinction between methanogenic, hydrogenotrophic, and acetoclastic bacteria;
- Measurement of methanogenic activity: laboratory batch test.



Lusaka Zambia

Technical support to reduce water losses

This project is part of the Lusaka Water Supply, Sanitation and Drainage Project (LWSSDP) funded by the U.S. government through the Millennium Challenge Corporation, which aims to improve the living conditions of the population of Zambia's capital. The project's objective is to assist Lusaka Water and Sewerage Company (LWSC) to reduce water losses from an estimated 48% to a target value of 25%. Efforts are focused on defining strategic action plans and deploying tools and methods with continuous transfer of skills and knowledge to local teams.

10
experts
mobilized

2,5 years
project
duration

95,000
customers

OUR EXPERTISE

1. Supervision of works to rehabilitate drinking water systems (110 km).

2. Evaluation of physical losses and implementation of leakage reduction:

- A redefinition of the city's existing water supply zoning;
- A measurement campaign;
- The calculation of levels of losses;
- The localization of leaks;
- Detailed design for the rehabilitation of the 65 km of pipelines identified as having the most leaks.

3. Assessment and reduction of commercial losses: complete update of the customer database with modifications to the land registry, door-to-door data collection using electronic forms, reconciliation of the field and existing databases, identification of metering problems, billing and fraud, and definition of commercial loss reduction and regularization plans.

Seureca is also in charge of transverse activities to ensure that these efforts are sustainable: updating all the processes and procedures related to managing unaccounted water, provision of equipment to locate leaks, and employee vocational training.



JITF Urban Infrastructure Limited India

Three detailed energy recovery reports

Following a competitive bidding process, the renewable energy development company Andhra Pradesh Limited selected JUIL to design three energy recovery plants in the cities of Guntur, Visakhapatnam, and Tirupati in the south of India. JUIL chose Seureca to prepare the detailed project reports for these three new plants.

36 MW
total energy capacity

1.5 million
tons of waste/year

3 million
persons concerned

OUR EXPERTISE

- Detailed project report for recovery facilities and the integrated power plant;
- Examination of the nature of pollutants and measures required to reduce them;
- Development of a conceptual model and selection of the technology and project configuration;
- Predictive model based on the availability and quality of solid waste;
- Design and engineering of material recovery facilities and waste-to-energy plant;
- Preparation of technical specifications of major equipment;
- Estimation of the investments and manufacturing costs;
- Preparation of a financial analysis for 25 years of plant operation;
- Assessment of labor requirements;
- Environmental management plan: monitoring, protection of the green belts, health and safety, pollution control units;
- Monthly maintenance schedule.



N'Dalatando Angola

Technical support for the Cuanza Norte water board

The project involves providing technical support to EASCN (Empresa de Água e Saneamento de Cuanza Norte) to manage the drinking water networks in N'Dalatando, capital of the province of Cuanza Norte in Angola. The goal is to expand service coverage from 9,000 connections at the start of the project to reach 14,000 in 2017. The network comprises 130 km of pipelines and is supplied by a 5,000 m³ reservoir connected to a treatment plant with an 8,000 m³/day capacity.

Financed by the **World Bank**

140,000
persons concerned

3 years
project duration

OUR EXPERTISE

Transfer of skills and training

- Customer service software: definition and implementation of invoicing procedures, collection of unpaid invoices, training program;
- Definition and implementation of a hydraulic model;
- Improvement of operation and maintenance: review of existing procedures and implementation of good practices;
- Training program for the water facility operations staff;
- Roll-out of financial software and definition of good financial practices.

Organization and workforce

- Management, accounting, information systems, financial, technical, operational, and maintenance expertise;
- Selection of qualified technical staff.

2016 IN FIGURES

30.5 M€

turnover

TURNOVER BY ACTIVITY (M€)



24

Water



1.1

Waste



5.4

Energy
of which Air 1.2

TURNOVER BY SECTOR (M€)



11%

industrial
sector



76%

municipal
sector



13%

tertiary
sector

WORKFORCE



25

NATIONALITIES
REPRESENTED

248

STAFF MEMBERS



50%

IN FRANCE

50%

INTERNATIONAL

FEMINIZATION RATE



34%

OF THE WORKFORCE
IS FEMALE

33.5%

OF EXECUTIVES
ARE FEMALE

HEALTH AND SAFETY



40%

OF EMPLOYEES TRAINED
IN FIRST AID

< 2.5%

WORKPLACE ACCIDENT
FREQUENCY RATE

TRAINING



64%

OF EMPLOYEES WERE
TRAINED IN 2016

16^{HRS}

OF TRAINING PER EMPLOYEE
TRAINED

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