

Consulting



#4

Once upon a time
the activity...

**Supporting local
authorities and industry
for a better waste
management**



Solutions responding to specific customers' needs

Nicolas BUSQUET

Head of international waste activity at SUEZ Consulting

“ In 1992, I was starting my career in the waste sector in France.

Methanisation was still experimental, 90% of biogas was burnt in flares, solid recovery fuels (SRF) were a utopia, eco-emballages was the only eco-organisation, bioethanol produced from rapeseed was the only biofuel on the market...

30 years later, everything has changed.

Our businesses have evolved and driven the definition of the regulations we know today.

Our role?

To work with local authorities and manufacturers to develop concrete solutions to reduce the environmental footprint of their activities.

From the rational use of natural and energy resources, to a second life for our waste and the development of initiatives that reconcile economic growth, well-being and personal development, we have solutions.

Today's utopias are tomorrow's realities, so let's act together. ”



Listen to Nicolas BUSQUET's anecdote



Addressing major challenges



1. Adapting to climate change

Integrate into our customers' energy mix renewable and low-carbon energy production solutions from their waste.

2. Anticipating tensions on the supply and cost of energy and materials

Giving a second life by promoting the reuse or recycling of rare earths and metals, reducing dependence on fossil fuels, developing a circular and local economy.

3. Preserving the environment and the living environment

Deploying treatment processes without discharges into the environment, optimising the use of the resource.

4. Professionalizing informal activities in emerging countries

To secure the informal waste sorting and recovery activities that exist on the sites we are responsible for, to train and accompany the reconversion and the realisation of a personal project. A set of societal missions towards the informal sector.



Tailor-made solutions to to local authorities and industrials

Strategic studies and
waste management plans



Feasibility studies



Technical assistance, project
management assistance (PMA)



Design project management,
drafting of contract documents,
monitoring of construction work



Audits



... for a better management of their waste

Define an integrated and operational long-term waste management strategy

based on a diagnosis of the existing situation and taking into account the socio-economic development perspectives on a territory or country scale

Evaluate and compare several scenarios & combinations of solutions to implement the most optimal one in technical, environmental and socio-economic terms

Ensure that the project runs smoothly by coordinating all the parties involved (designer, builder, etc.), ensuring that the budget and schedule are respected and that the installations comply with requirements,...

Carry out the complete project management of a waste treatment facility by contributing as integrated engineering within groups or as independent engineering

Conduct technical, regulatory, environmental, organisational or due diligence audits on waste collection or treatment facilities as part of management plans, continuous improvement of our operating processes or an acquisition for local authorities or industry

Working with our clients across the value chain



ORGANIC WASTE RECOVERY

Anaerobic digestion
Mechanical and biological treatment
Composting



ENERGY RECOVERY

Energy from Waste facility
Biomass pyro-gaseification



WASTE DISPOSAL

Inert waste landfill
Non-hazardous waste landfill
Hazardous waste landfill



MATERIAL RECOVERY FACILITIES

Preparation of Residues Derived Fuel
Professional and public waste reuse and recycling centers
Sorting plants
Special waste streams management
Bottom ashes and stabilized flue gas treatment residues

Belgrade is facing critical challenges in managing its waste. The Vinca landfill site needs to be reconsidered to contribute reaching Serbia's national targets: divert 65% of biodegradable waste from landfill by 2030.

6.2 million cubic meters
on a surface of 23 ha

A capacity of 5,500,000 tons
of waste managed

Vinca - Serbia

Designing a sanitary landfill to face a current issues

The project aims to considerably reduce pollution from the existing Vinca landfill by developing and operating a new sanitary landfill in compliance with Serbian & EU Standards.

Reduce landfill waste, produce heat and electricity through thermal treatment of waste and landfill gas several solutions implemented to contribute to a circular economy transformation.

Missions

Our teams were commissioned by SUEZ Serbia for **the remediation works of the existing landfill and design of the new Belgrade-Vinca Sanitary Landfill** with different missions:

- **Propose and design remediation scenario** to launch the official consultation for the rehabilitation of the existing Vinca landfill
- **Study and design** the new Landfill Extension using international standards and launch the consultation for construction



Securing the resource, sizing the purification process, analysing the marketing channels, consolidation of financial viability.

70% of the biogas generated to be captured and recovered by 2025

A 18-month study

Meknès - Morocco

Taking advantage of a new energy source to reduce the dependence of a territory to fossil fuels

SUEZ Consulting teams, in synergy with SUEZ Group subsidiaries and reinforced by external expertise*, are carrying out a feasibility study for the Municipality of Meknès in order to assess the main challenges of the biomethane sector taking into account the lack of a city gas network in Morocco.

Missions

This set of missions involves:

- **Carrying out an inventory of current waste degradation**, in order to anticipate production over the coming years
- **Designing the WAGABOX® purification process** and adapting it to the plant's specificities to remove any technical obstacles and determine the costs of producing biomethane
- **Conducting a technical-economic study into biomethane recovery channels**, at a regional level and, on a wider scale, to address logistical, regulatory and financial issues of the biomethane sector
- **Quantifying the energy performance** of the recovered energy at every stage, in order to determine a fair sales price for the biomethane produced and to analyse potential financing mechanisms

*Various Group activities involved (SUEZ Atlas, Air and Climate) and AIRIA Technology, Waga Energy, MOBELEAD and ECOACT

In the Arcachon Basin, the accumulation of sediments in the ports and their access channels represents an obstacle to navigation.

8 000 m³ of sediment used
in dyke backfill

25 000 m³ technical backfill
for sewerage trenches

Arcachon - France

A second life for the sediments of the Arcachon Basin

The creation, development and management of a transit facility will make it possible to free the existing basins of their sediments and to envisage the programming of dredging works in a more approximate way. **The Syndicat Intercommunal du Bassin d'Arcachon** has missioned SUEZ Consulting's teams for the development of a **Dredging Sediment Management Unit**.

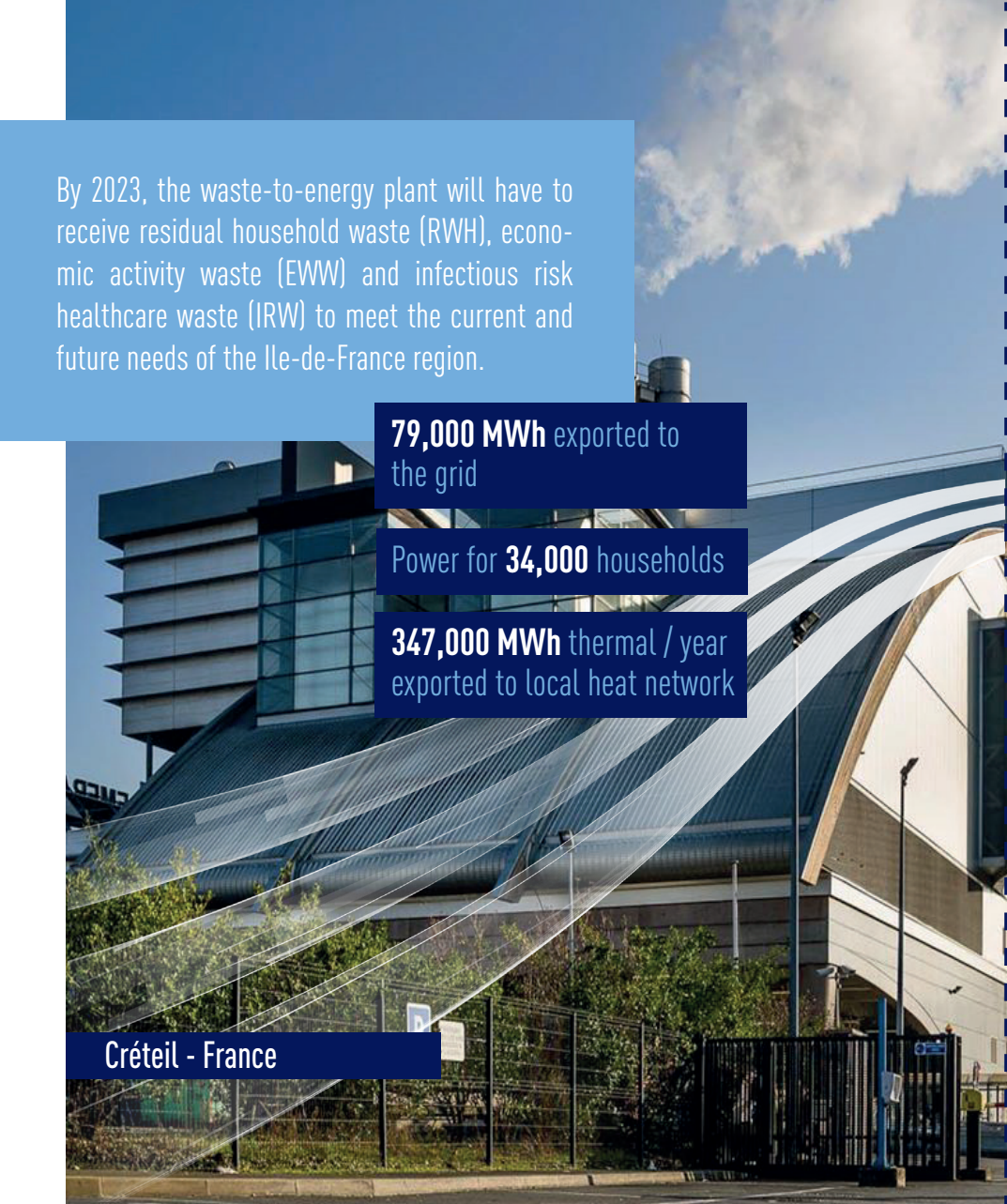
The sediments resulting from these operations will be transported on land in decantation and storage basins, then evacuated from the site for their recovery.

The project foresees the creation of a management unit on an 8ha plot of land located in the commune of Arès.

Missions

In charge of the operation's project management, SUEZ Consulting brings its skills and expertise to:

- **Optimize** the movement of materials and the water profile between basins and lagoons
- **Propose relevant and innovative solutions** to build slopes of basins that are both watertight and resistant to mechanical actions removable covers for basins



By 2023, the waste-to-energy plant will have to receive residual household waste (RWH), economic activity waste (EWW) and infectious risk healthcare waste (IRW) to meet the current and future needs of the Ile-de-France region.

79,000 MWh exported to the grid

Power for **34,000** households

347,000 MWh thermal / year exported to local heat network

Créteil - France

Producing energy from waste

Located in the commune of Créteil, in the area known as "Malfourches", the energy recovery unit (UVE) has been in operation since 1976. Since January 1, 2018, the operation of the facility has been entrusted to the company VALO'MARNE, under a public service delegation contract (DSP).

4 major missions for our teams:

- **Decarbonized Energy:** recovering ever more and ever better the energy produced by waste
- **Citizen Energy:** enhancing social integration actions and making circular economy education visible
- **Creative Energy:** enhancing innovative projects so that the local community can be brought forward through its actions
- **Shared Energy:** promoting a connected and engaged service

The National Waste Management Plan (NWMP) of Croatia for 2017-2022 has to be revised & adjusted to face current challenges.

1.5 tons of waste produced
per inhabitant each year

6,003,759 tons total waste
production in 2020
settlements

Croatia

Defining the new waste management plan for Croatia with specific analyses

To do so and respond to the European Union requirements, our team will provide expert support and conduct necessary analyses to support the Ministry of Economy and Sustainable Development-MoESD in the plan's revision.

Missions

Our teams are commissioned to provide the expert basis to MoESD for the NWMP 2023-2028 by:

Analysing...

- Current waste management situation: the type, quantity and source of waste generated, transboundary shipment of waste including forecasts of the development of waste streams
- The need for new collection schemes and waste treatment infrastructure

Defining...

- Measures to be taken to improve waste collection and environmentally sound re-use, recycling, recovery and disposal of waste
- Necessary short, medium and long-term investments and possible funding sources for proposed measures
- Efficient KPI for NWMP implementation monitoring



According to current Croatian Waste Management Plan for the period 2017-2022 to respond to the European Union requirements Croatia needs to improve hazardous waste management.

186.956 tons of hazardous waste

Croatia

Preparing dedicated analyses for the improvement of Croatian hazardous waste management

Our team will provide **expert support and conduct necessary analyses to support the Environmental Protection and Energy Efficiency Fund (EPEEF)** in preparation of feasibility study for HW treatment capacities and study on “hot spots”.

Missions

Provide the expert basis to EPEEF for Croatian HW management improvement by:

- **Collection of reliable estimation & information** on types, quantities, and sources of hazardous waste produced and treated in Croatia as well as exported out of the country
- **Estimation of existing capacities** for hazardous waste treatment
- **Recommendations** on hazardous waste management data improvement
- Identification of the hazardous waste treatment capacities necessary to **ensure their economically and ecologically sustainable management**
- Developing criteria and methodology for “**hot spots**” **identification** and developing possible solutions for remediation of identified ones

Part of the AFD-funded “Cities and Climate Change in sub-Saharan Africa”, the project aims to strengthening the primary waste disposal chain in Kano City

30-40% of domestic solid waste produced in the city collected

300 tons / day of waste recycled

Kano - Nigeria

Reducing Nigeria's greenhouse gas emissions and developing sustainable & decentralized energy source

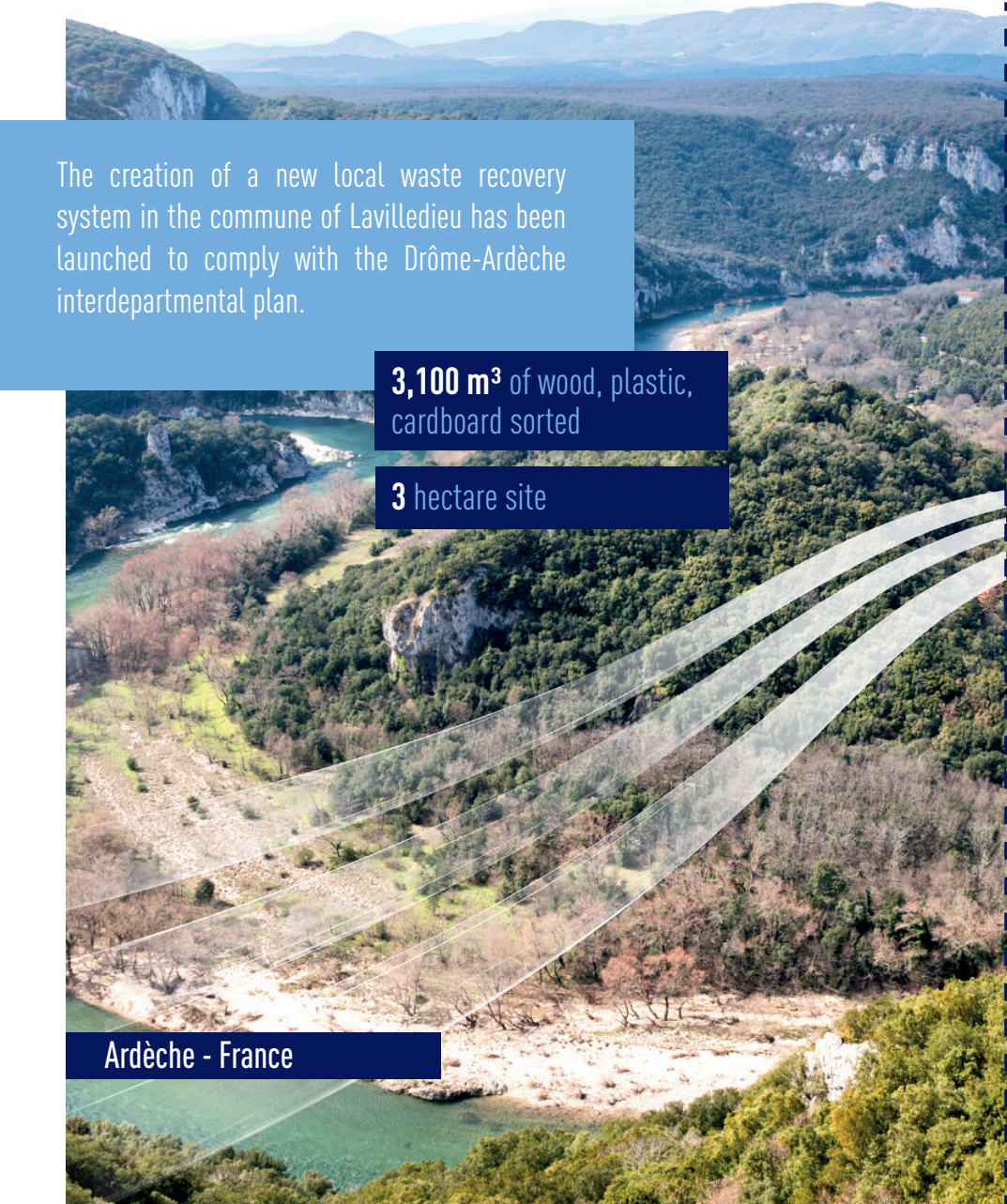
This project supporting an efficient, inclusive and sustainable waste management system through two majors' axes:

- **An investment component** including the reclamation of existing dumpsites, construction of an engineered sanitary landfill with energy recovery through biogas valorization, the construction of transfer loading stations and community waste depots in low-income communities, and the provision of vehicles and/or equipment of maintenance workshops.
- **A comprehensive capacity building plan** for REMASAB including technical assistance, public policy support social and gender support.

Missions

The project has been developed into 3 phases:

- phase 1: formulation of Kano SWM Strategy and Action Plan
- phase 2: feasibility Study of Short- to Medium-Term Action Plan
- phase 3: assistance to Tendering for Subsequent Studies



The creation of a new local waste recovery system in the commune of Lavilledieu has been launched to comply with the Drôme-Ardèche interdepartmental plan.

3,100 m³ of wood, plastic, cardboard sorted

3 hectare site

Ardèche - France

Strengthening the recovery of household waste in Lavilledieu

The Ardèche unions SIDOMSA (Syndicat intercommunal de destruction des ordures ménagères du secteur d'Aubenas) and SICTOBA (Syndicat intercommunal de collecte et de traitement des ordures de la basse Ardèche) wish to increase the recovery of their household and similar waste and reduce the use of landfill.

Missions

SUEZ Consulting was commissioned to produce the Environmental Authorisation Application File, including

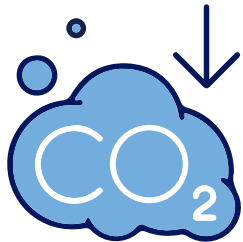
- The technical description of the runoff management works
- The management of subcontractors for specific studies (Quantitative Health Risk Assessment, lightning risk analysis, fauna-flora ...)
- The realization of the impact and danger studies
- The drafting of the justification report for not carrying out a baseline report and a document comparing the best available techniques
- Calculation of financial guarantees
- Setting up and assembling the Environmental Authorisation Application file
- Post-submission monitoring of the file (admissibility, public enquiry)

DID YOU KNOW



BY **2050**, WORLDWIDE MUNICIPAL SOLID WASTE GENERATION IS EXPECTED TO HAVE INCREASED BY ROUGHLY **70%** TO 3.4 BILLION METRIC TONS

Source: www.statista.com



THE CAPTURE AND RECOVERY OF BIOGAS FROM UNCONTROLLED LANDFILLS AND NEW FACILITIES WILL REDUCE GREENHOUSE GAS EMISSIONS BY **18** AND **20%**

Source: L'Anaerobic Digestion & Bioresources Association (ADBA)

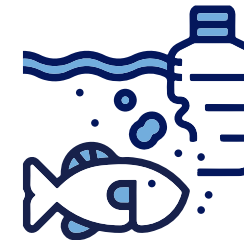


13%, SHARE OF RENEWABLE ENERGY IN PRIMARY ENERGY CONSUMPTION IN FRANCE IN **2021**

Source: <https://www.statistiques.developpement-durable.gouv.fr/>

2.2 MILLION TONS OF CO₂ ARE AVOIDED THROUGH PACKAGING RECYCLING IN FRANCE

Source: www.citeo.com



10 MILLION TONS OF MACRO-WASTE DISCHARGED INTO THE MARINE ENVIRONMENT EACH YEAR, OF WHICH **80%** COMES FROM LAND AND **20%** FROM MARITIME ACTIVITIES

Source: <https://www.notre-environnement.gouv.fr/>

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