



sycdom

Syctom's main figures,
the public authority for the sustainable management
of household waste in the Paris region

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SYCTOM: HISTORY, AREAS OF EXPERTISE AND GOVERNANCE

HISTORY

- Since 1984, Syctom has been managing household waste in 85 municipalities, including Paris, representing 6 million inhabitants, which makes Syctom the leading public waste treatment operator in Europe.
- Syctom owns 10 treatment units to treat and recover the waste of 6 million inhabitants: 3 energy recovery units, 6 sorting centres and a transfer centre.



Syctom owns
10
HOUSEHOLD
WASTE
TREATMENT
UNITS

SYCTOM'S AREAS OF EXPERTISE

Treatment and recovery of household waste

- The treatment expertise:
 - energy recovery;
 - sorting of paper and packaging for recycling;
 - the recycling of food waste into compost or biogas;
 - landfilling as a last resort;
 - the necessary transport and storage operations.
- Syctom is simultaneously developing a prevention and awareness strategy aimed at encouraging waste reduction and sorting.

GOVERNANCE BODIES

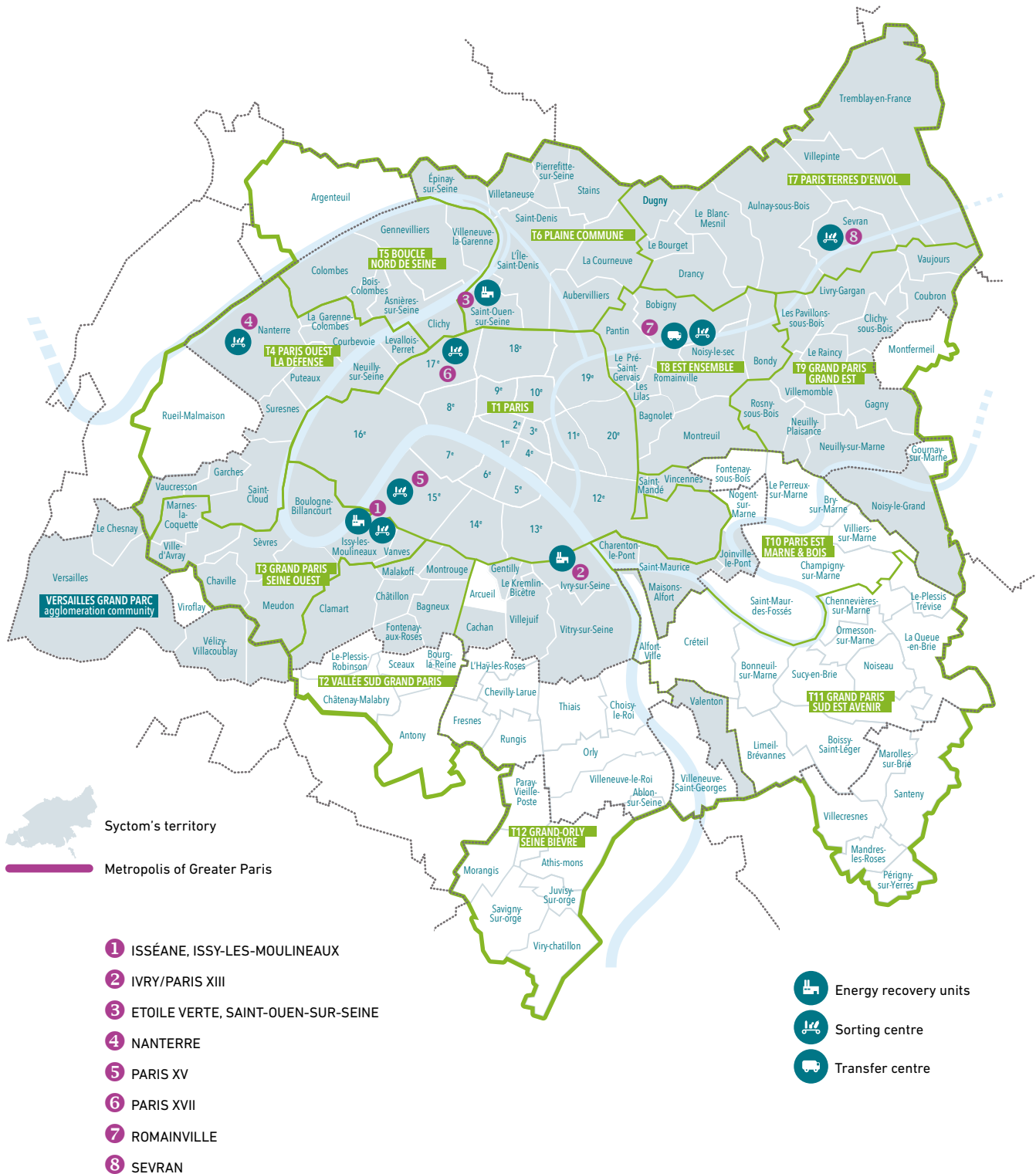
The Committee of representatives

- Is composed of 90 full members and 90 substitute members, appointed by the member local authorities;
- Defines the public waste management policy at the scale of its territory of operation, votes the budget, decides on investments;
- Rules on membership and withdrawal requests from local authorities.

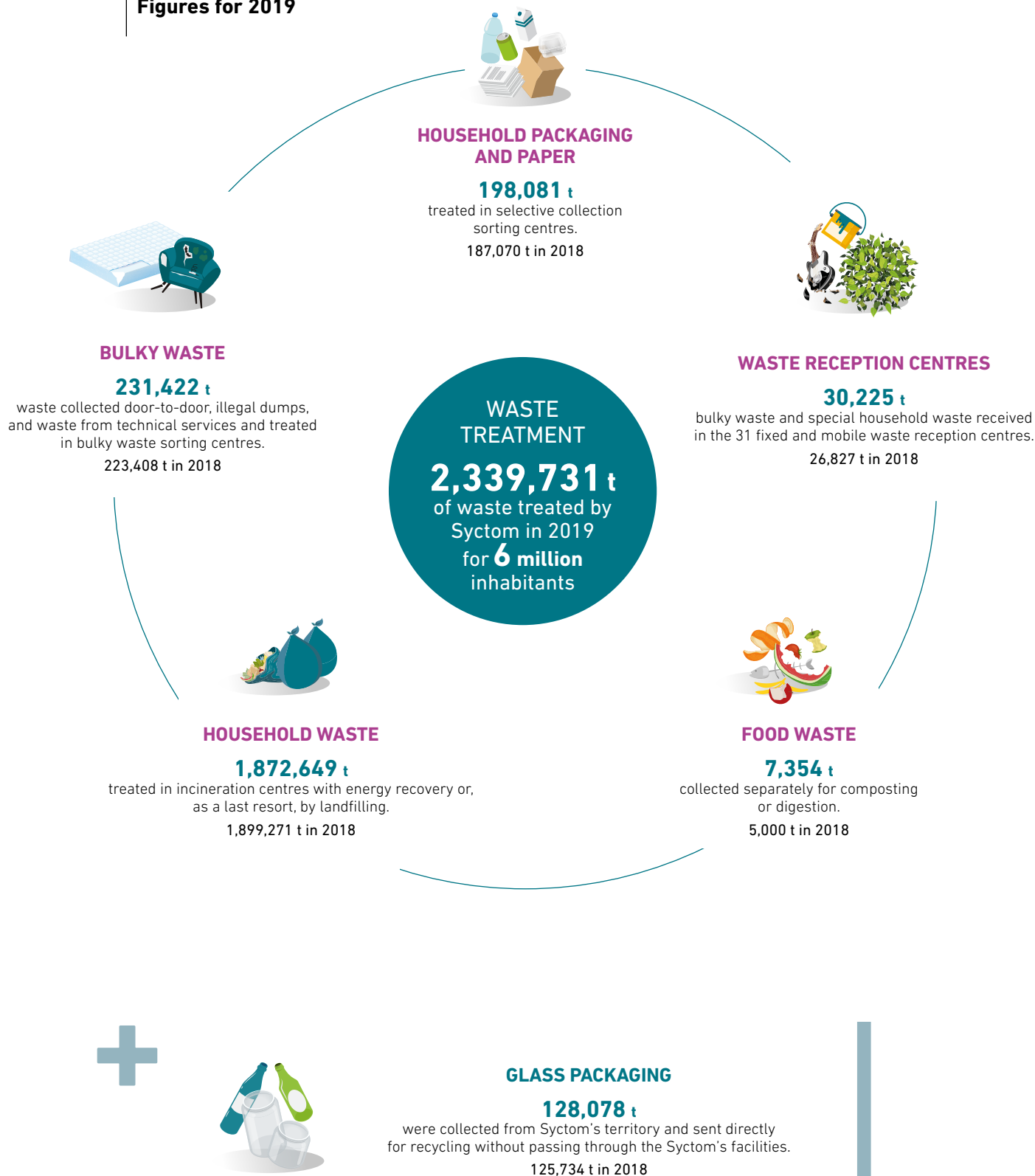


A Committee of
representatives
composed of
90 FULL
MEMBERS

Syctom's territory covers 85 municipalities, including Paris, located in the dense region of Île-de-France.

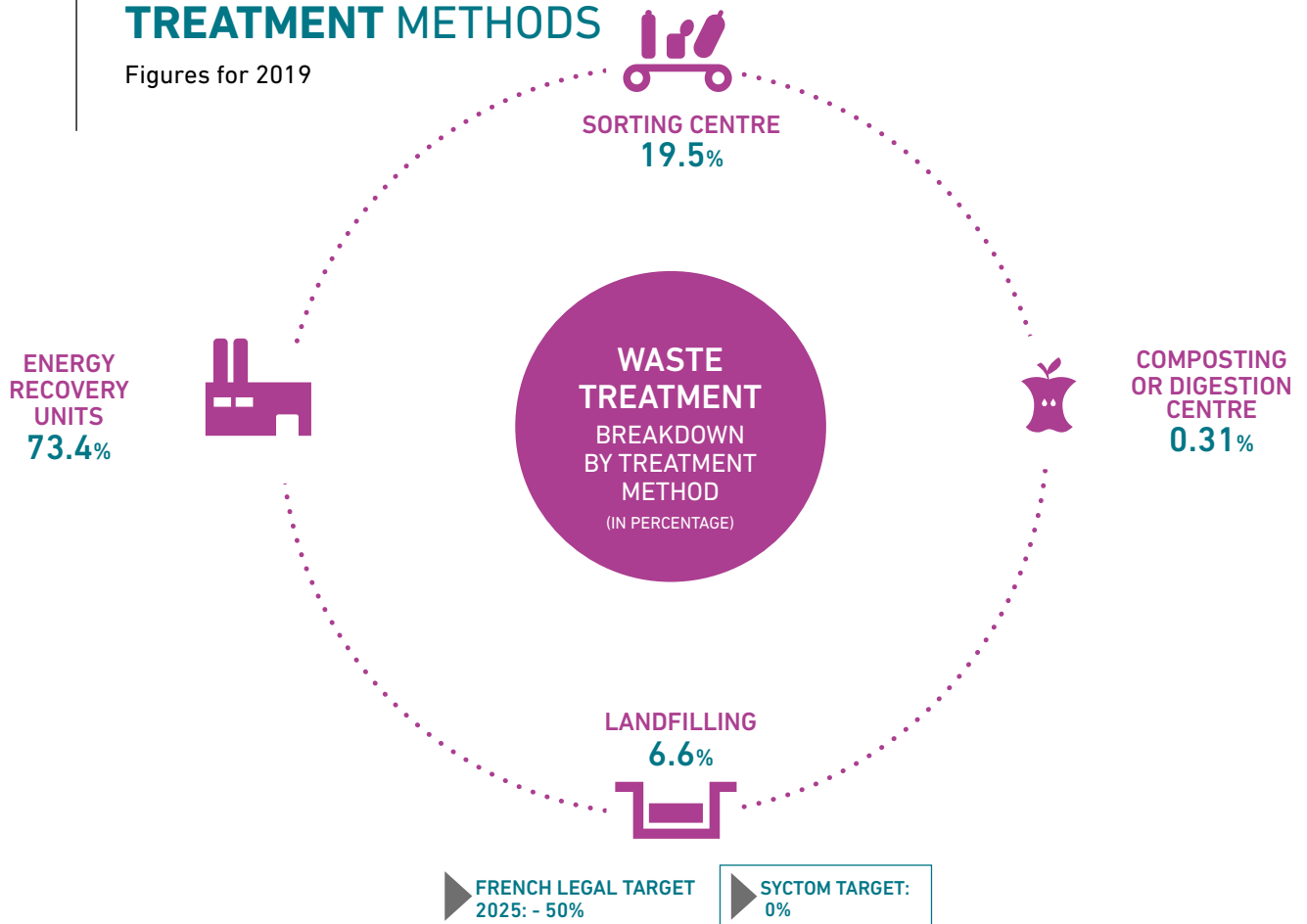


Figures for 2019



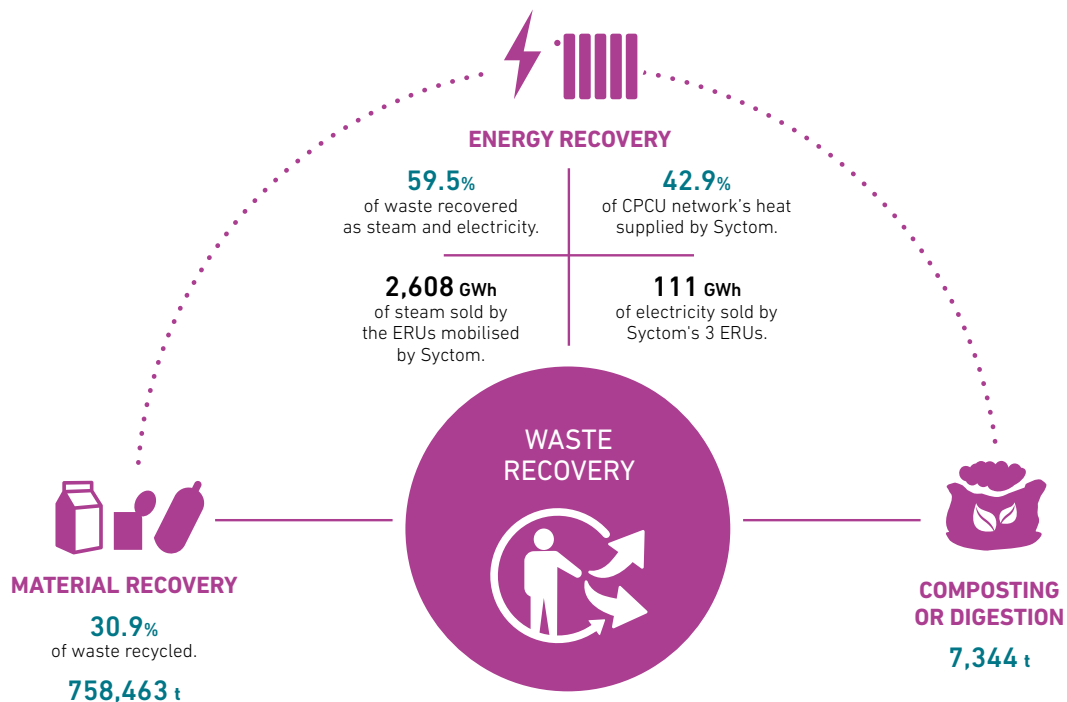
TREATMENT METHODS

Figures for 2019



RECOVERY

Figures for 2019

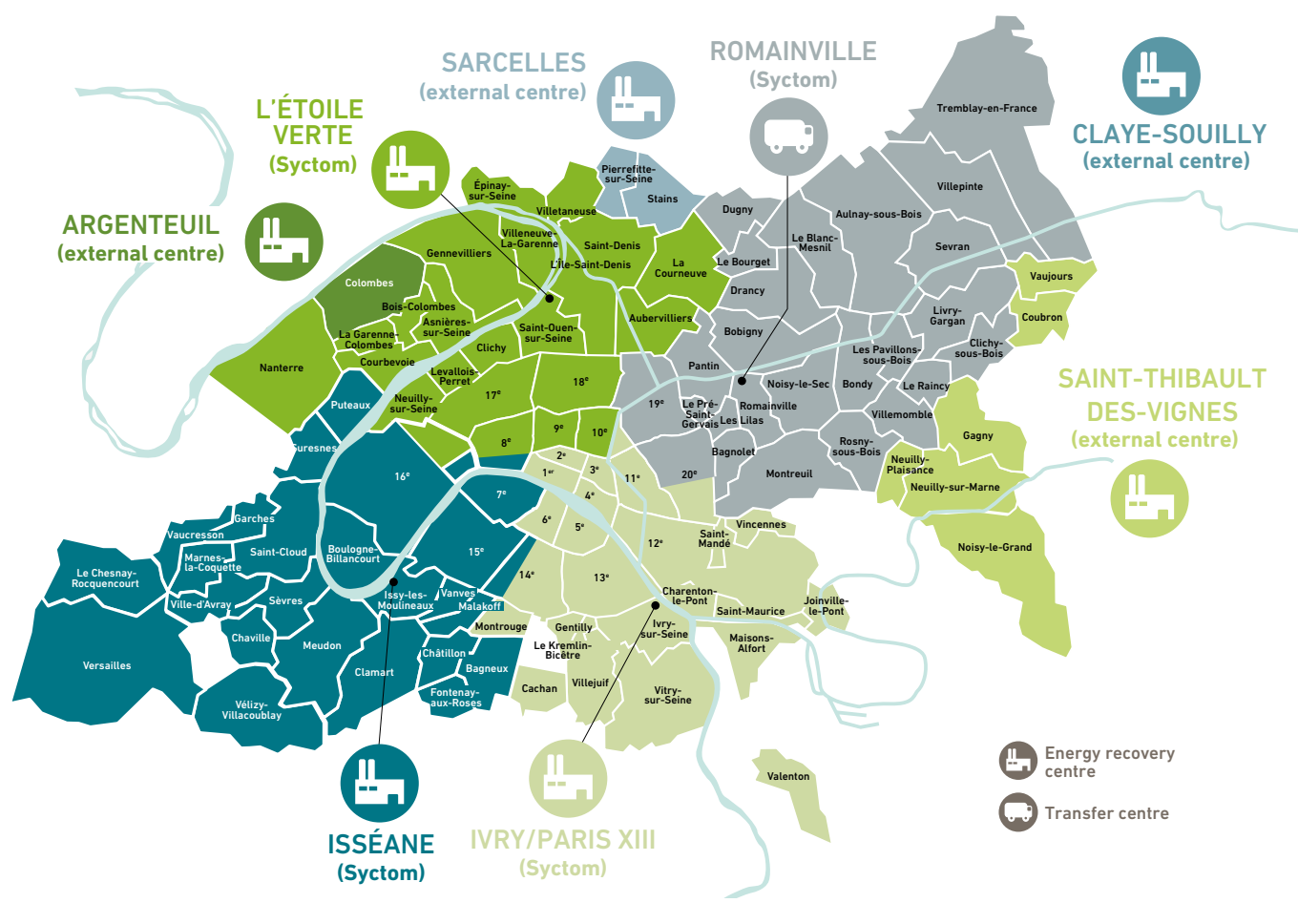


COLLECTION CATCHMENT AREAS

Syctom's territory is organised into catchment areas, according to three treatment methods: energy recovery from residual household waste, sorting of selective collection, and sorting of bulky waste. In line with the principle of geographical proximity to limit transport, each catchment area is associated with a treatment centre, where the collection vehicles of the local authorities come to dump their waste.

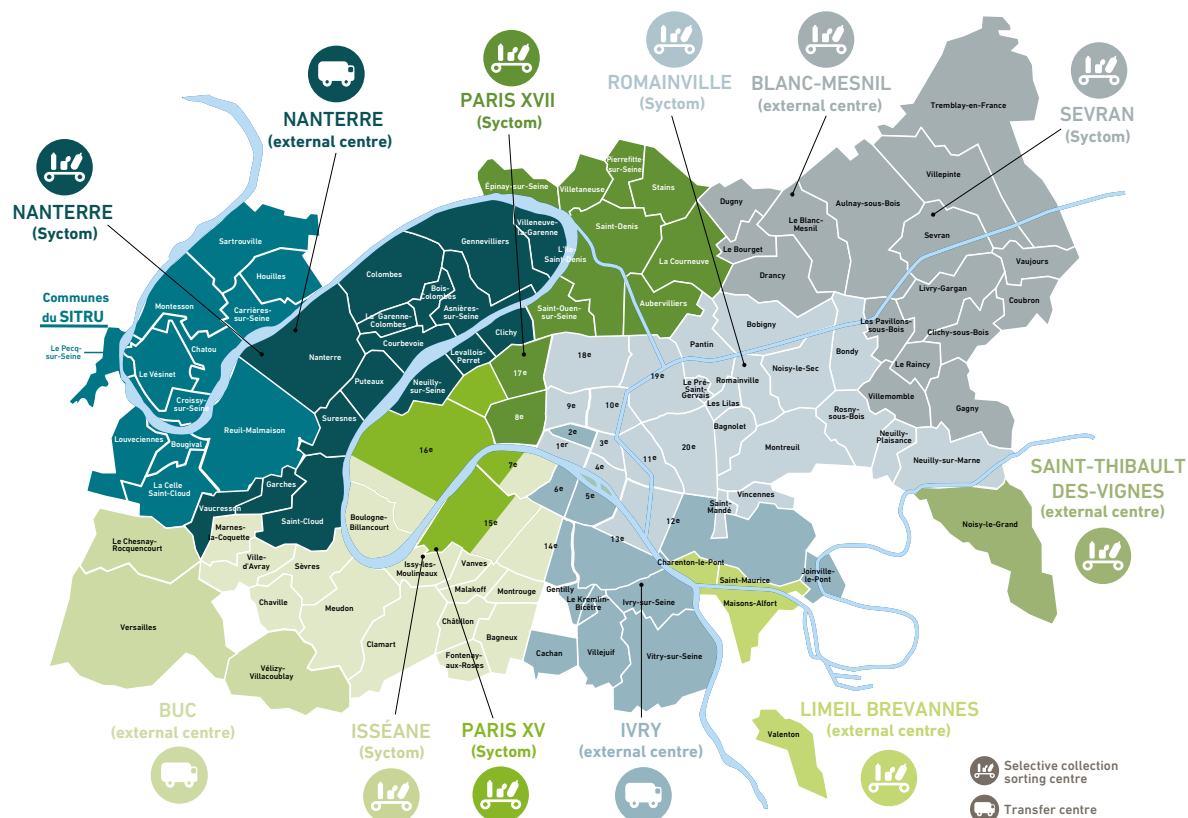
RESIDUAL HOUSEHOLD WASTE

Catchment areas as on 31 December 2019



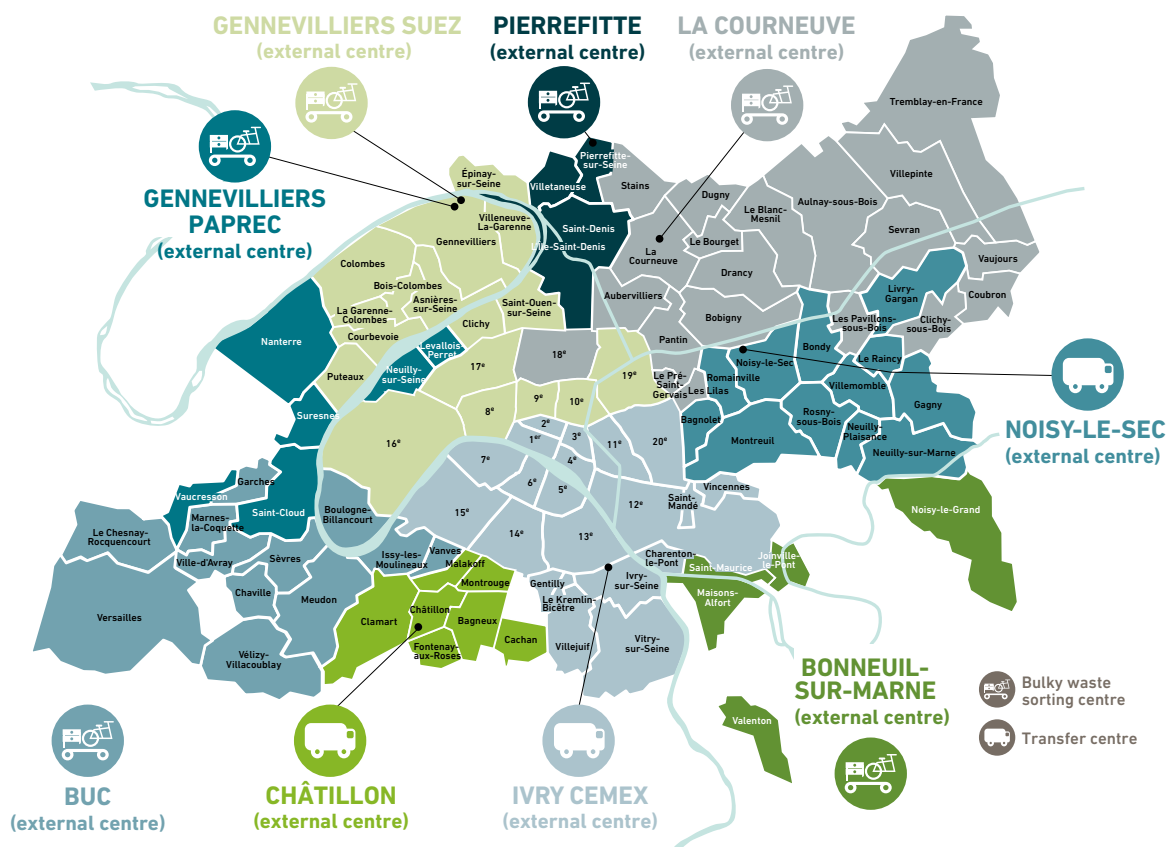
SELECTIVE COLLECTION

Catchment areas as on 31 December 2019



BULKY WASTE

Catchment areas as on 31 December 2019



To succeed collectively in reducing the waste produced in its territory, Syctom co-developed a joint action plan in 2019 with the voluntary players involved in the circular economy (public territorial establishments, municipalities, the Region, associations, representatives of household waste producers or large producers, waste treatment operators, etc.).

35 actions

This great challenge (Le Grand Défi), a shared plan with 35 actions, now guides Syctom's roadmap and that of our partners.

GOAL OF THE GREAT CHALLENGE

By 2025 and in accordance with the projection made by Syctom in its contribution to the Regional waste prevention and management plan: **reduce the volume of household and similar waste produced in Syctom's territory by 450,000 tonnes.**

HOW?

Promote the reduction in the volume of waste produced in Syctom's territory, find solutions to further minimise landfilling.



1. Educate, inform and train at the grassroots level
2. Act in a concerted manner in Syctom's territory
3. Communicate
4. Innovate, mobilise and support in the territories
5. Develop partnerships
6. Mobilise the legislative and regulatory framework
7. Implement, monitor and assess the plan

WHAT ARE THE DRIVERS?

Prevention

It covers the upstream stages of the product's life cycle before it is taken over as waste by an operator or by the local authority.

This involves reducing the quantities of waste produced by households, businesses and administrations, as well as increasing recyclability or reducing the harmfulness of waste during product design by companies by using products with less impact on the environment.

Awareness building

It focusses both on improving the sorting habits of households and professionals in particular to increase material recovery, and on disseminating the virtuous practices of reduction at source, eco-design and responsible consumption.



ENERGY RECOVERY UNITS

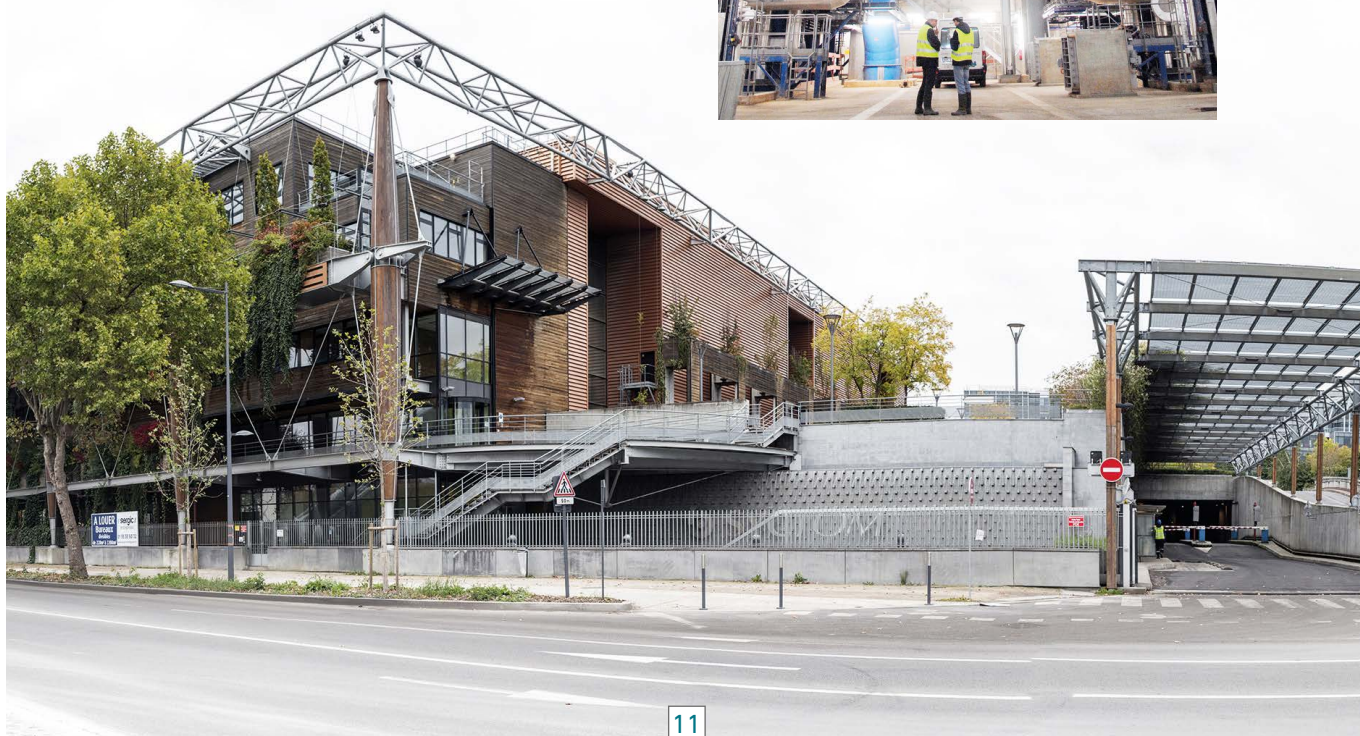
Residual household waste from the territory is treated by Syctom in its three energy recovery centres and, additionally, in external public or private centres.

The heat generated by the combustion of waste is used to produce steam for urban heating as well as electricity networks.

The steam produced by Syctom's 3 energy recovery units can heat the equivalent of 300,000 homes, including all hospitals in Paris. The electricity produced enables the incineration centres to be self-powered, the surplus being sold to EDF.

ISSÉANE, ISSY-LES-MOULINEAUX

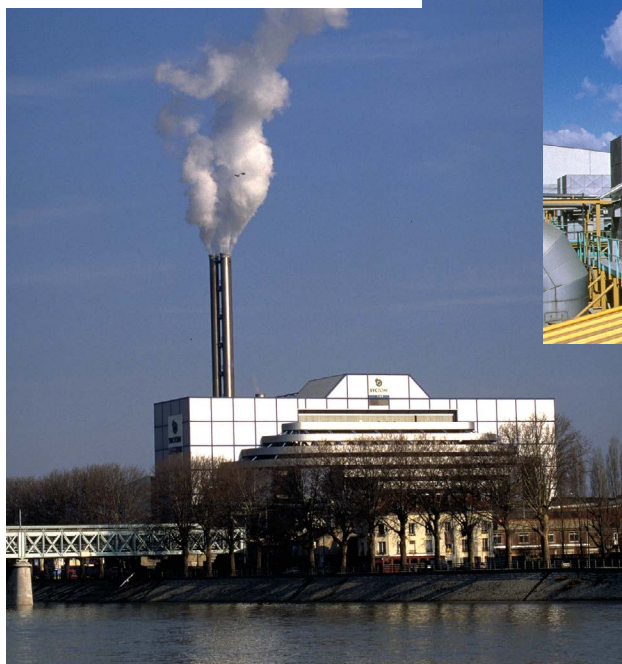
- Opening date: 2007
- **Operating capacity:**
510,000 tonnes/year
- Operator: Issy Urbaser Energy (Urbaser) since 2019 until 2027





ÉTOILE VERTE IN SAINT-OUEN- SUR-SEINE

- Opening date: 1,990
- **Operating capacity:**
600,000 tonnes/year
- Operator:
Dalkia Wastenergy (EdF)
since 1986 until 2024



IVRY/PARIS XIII

- Opening date: 1969
- **Operating capacity:**
700,000 tonnes/year
- Operator: IP13 (Suez)
since 2015

**Upgrade works
in progress for a capacity
350,000 tonnes/year in 2024**



ENVIRONMENTAL PROTECTION

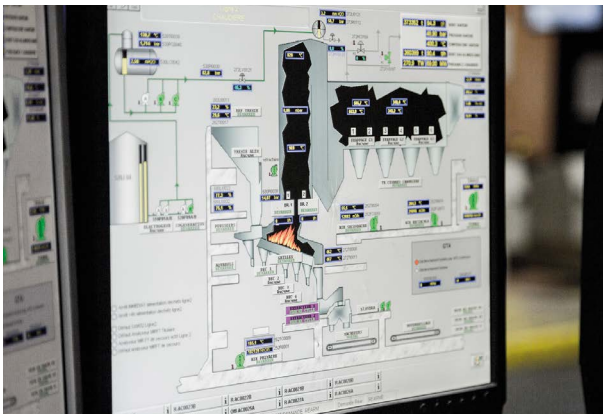
Flue gases from the furnaces are purified to eliminate dust and pollutants, such as NO_x (nitrogen oxides), dioxins, heavy metals, chlorine, sulphur dioxide and various toxic compounds. The flue gas treatment methods used in Syctom's energy recovery units guarantee emissions that are much lower than the regulations in force. Atmospheric emissions are constantly monitored thanks to analysers placed in the stacks.

At the same time, Syctom carries out regular campaigns to monitor emissions and to measure atmospheric fallout using Owen gauges and bio-monitoring of mosses and lichens.

These measurements are all validated by independent organisations.

The residues produced are recycled or subjected to a specific treatment:

- Bottom ash (solid residues) is transported by water to be recycled in public works;
- Residues from purification of flue gas are recovered or landfilled in a hazardous waste storage centre.



PROTECTION

Household paper and packaging collected separately in the territory are treated in one of Syctom's six sorting centres and, additionally, in external public or private sorting centres. Here, waste is sorted and separated by type of material for recycling.



PARIS XV

- Commissioned in 2011
- **Operating capacity:**
32,000 tonnes
- Operator: XVéo (Veolia) since 2019 until 2025

PARIS XVII

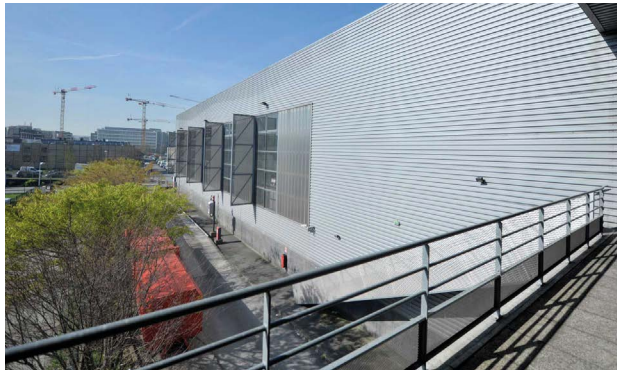
- Commissioned in 2019
- **Operating capacity:**
45,000 tonnes
- Operator: CNIM since 2019 until 2021





ISSÉANE, ISSY-LES-MOULINEAUX

- Commissioned in 2008
- **Operating capacity:**
23,000 tonnes
- Operator: TSI (Suez)
since 2019 until 2027



NANTERRE

- Commissioned in 2004
- **Operating capacity:**
40,000 tonnes
(capacity increased in the future
to 65,000 tonnes)
- Operator: Trivalo 92 (Paprec Group)
since 2019 until 2026



ROMAINVILLE

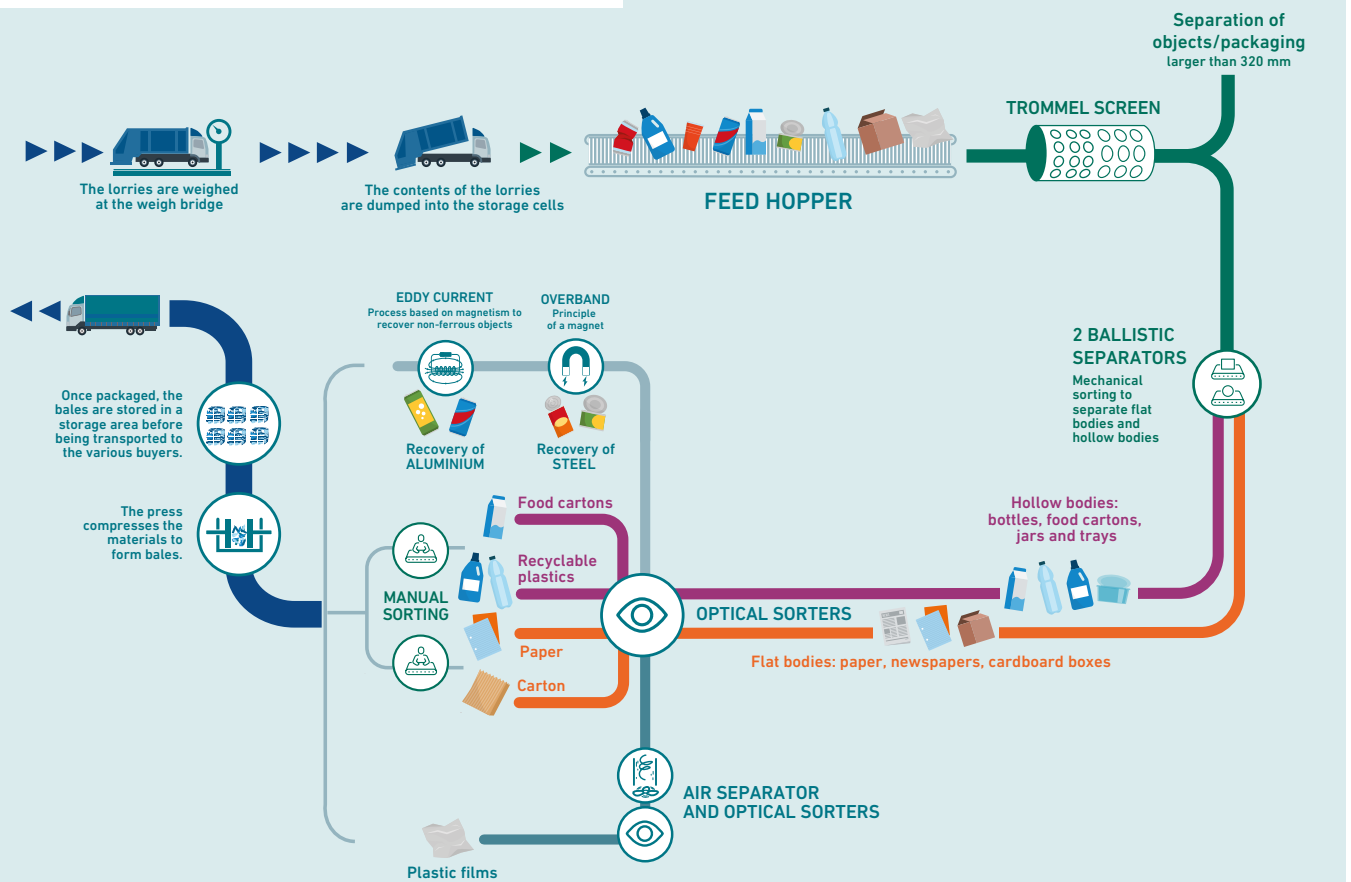
- Commissioned in 1993
- **Operating capacity:**
53,000 tonnes
- Operator: Valoram (Urbaser)
since 2016 until 2023



SEVRAN

- Commissioned in 2008
- **Operating capacity:**
17,000 tonnes
- Operator: Ihol (Veolia)
since 2013 until 2020

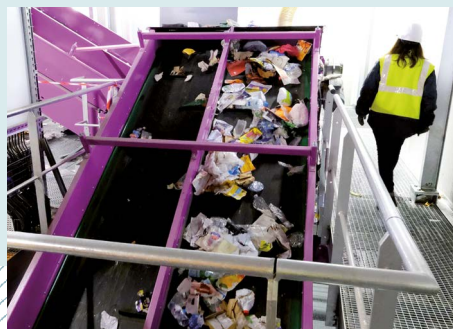
Block diagram of a sorting centre



The extension of sorting instructions urges us to prepare for the recycling of new types of packaging: trays, jars, plastic films and bags, as well as small metal packaging (lids, caps, covers, etc.). This implies more precise separation in the sorting centre.



ALL PACKAGING AND PAPER ARE SORTED IN THE RECYCLABLES BINS
(Glass packaging should be placed in specific bins or containers)



What happens to the sorted materials leaving a sorting centre?

Paper and packaging, once sorted by material and packaged in bales, are sent to recycling plants. Water transport is preferred.

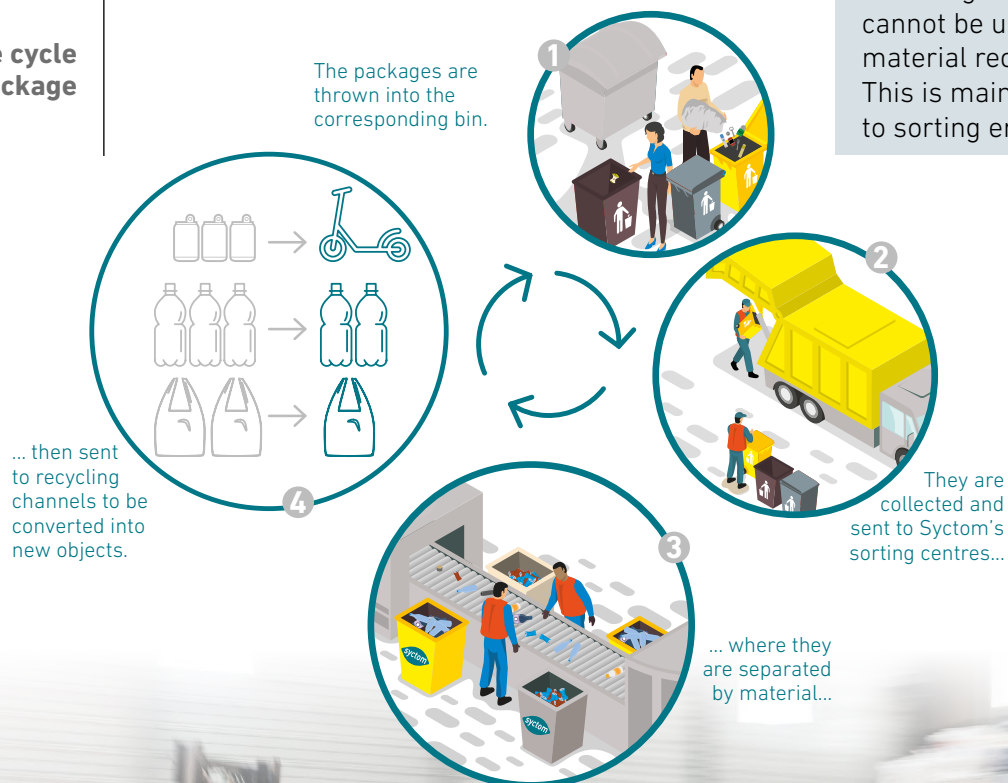
These materials are then converted into “secondary raw materials”: newsprint paper, cardboard and plastic, aluminium or steel granules, which go into the manufacture of new products.

For example:

- > paper and cardboard are recycled into paper, hygiene products, cardboard packaging or insulation materials;
- > metals (steel, aluminium) are infinitely recyclable and are reused in the manufacture of bicycles, chairs, tools or cans;
- > water bottles can be converted into bottles and fibrefill and sweaters into fleece, etc.

RECYCLE

Life cycle of a package



ZERO LANDFILL OBJECTIVE FOR RECOVERABLE WASTE

In 2019, only 6.6% of household waste was landfilled in Syctom's territory (9.6% if sorting rejects are taken into account), while the national average is 35%. Landfilling is done exceptionally: furnace shutdowns, strikes, etc. Syctom's strategy aims to constantly improve its industrial facilities in order to avoid the burial of recoverable waste and achieve the goal of zero landfilled waste.

Since June 2020, household waste is stored to build up a buffer stock to optimise the supply of Syctom's energy recovery centres.

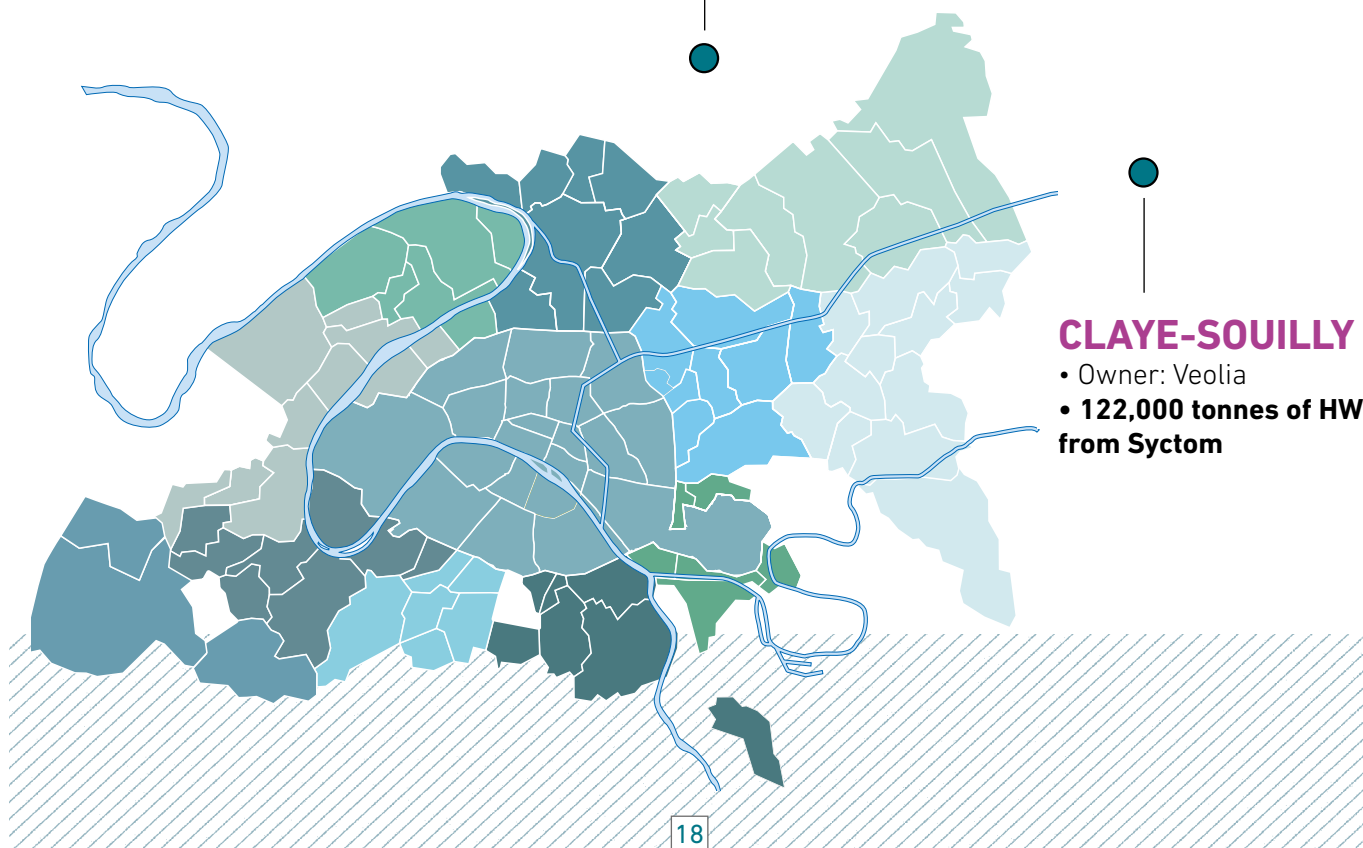


BOUQUEVAL

- Owner: Veolia
- **32,000 tonnes of HW** from Syctom

CLAYE-SOUILLY

- Owner: Veolia
- **122,000 tonnes of HW** from Syctom

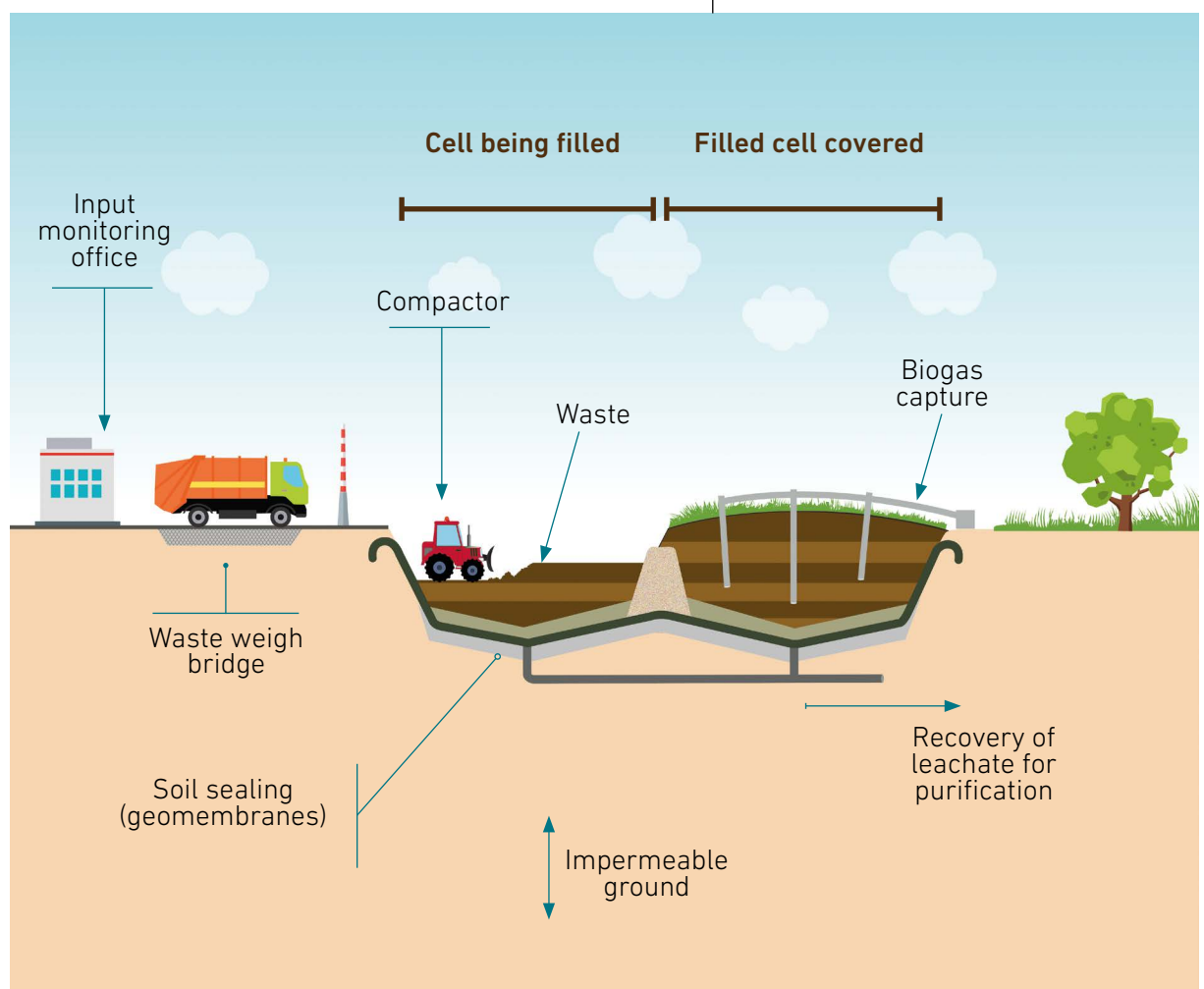


Principle of landfilling

When landfilling is necessary, waste is stored in Storage Facilities for Non-Hazardous Waste (NHWSF).

The conditions in which waste is stored are very strict, in order to control the impact on the environment: sealing of the cells, biogas capture, recovery of leachate, etc.

Diagram of a landfill centre



Treating organic waste separately helps to achieve several additional objectives:

- Reduce the volume of waste intended for energy recovery;
- Recycle this waste into biogas and compost;
- Make waste producers aware of the fight against food waste.

Organic or bio-waste represents a third of residual household waste. The law stipulates that all individuals must have a practical solution for sorting their bio-waste at source before 2024 in order to set up a circular economy for organic matter.

Local authorities will be able to set up separate collections or even offer local recovery solutions, and it is their responsibility to demonstrate that these two solutions make it possible to treat comparable volumes of waste.

Syctom already treats around 7,350 tonnes of food waste every year.

WHAT SYCTOM IS PLANNING TO DO

- **Development of the selective collection of food waste**
- **An R&D project with SIAAP- the greater Paris Sanitation Authority: the Cométhà project** (see sheet 11. R&D)
- **An industrial biodigestion project** in Gennevilliers with SIGEIF - public supplier of gas, electricity and local energy in Île-de-France (see sheet 10. Projects)



 **7,354**
tonnes
of food waste
treated in 2019



Assistance already provided to member local authorities

- **More than 60,000 individual composters** distributed since 2011 for a total amount of €2,024,190.
- Training of local intermediaries in home composting (individuals, associations, donors, etc.).
- A specific treatment of bio-waste collected separately offered to members at the exceptional and attractive rate of €5 per tonne.
- Support for experiments in the separate collection of organic waste carried out in households, markets, schools and collective restaurants in 44 municipalities.
- Two micro-local treatment projects using electromechanical composting.

WHAT HAPPENS TO THIS WASTE?

It is transported to various digestion centres to first produce biogas and then compost.

HOW MUCH DOES THIS COST SYCTOM?

Today, Syctom offers waste treatment at an extremely attractive cost in order to encourage its members to experiment with different collection and/or recovery methods, including locally.

The actual cost of these collections and their treatment is 250 €/tonne.



Syctom has created a website to provide all information about food waste:
mesdechetsalimentaires.fr



The challenge of improving sorting performance and the search for new forms of waste recovery has led Sycotom to carry out major maintenance, modernisation and upgrade works on its industrial facilities.

CENTRE IN IVRY/ PARIS XIII

Replacement of an energy recovery centre treating 700,000 t/year of household waste, with a new unit with a capacity of 350,000 tonnes.

WHY?

- The previous plant is at the end of its life (50 years of operation). It must be dismantled to replace it with a unit equipped with the most efficient equipment in terms of environmental protection: controlled odours, reduced noise, decreased atmospheric emissions, less traffic.



Cost of the works:

€500 million

The works are underway and will be completed in **2025**.

ETOILE VERTE IN SAINT-OUEN SUR-SEINE

Urban integration project at the energy recovery centre, Etoile Verte, located in the heart of an eco-district, treating 600,000 t/year of household waste. These works and those related to improving environmental performance constitute an industrial challenge without any interruption in the waste recovery activity.

WHY?

- Visual and sound integration of buildings in a dense urban environment;
- Creation of office buildings;
- Modernisation and improvement of the flue gas and waste water treatment processes;
- Development of an innovative process for capturing CO₂ from incineration fumes.



Cost of the works:
€210 million

The works are
underway and will be
completed in **2024**.

ROMAINVILLE / BOBIGNY



Project designed to provide the north-eastern quarter of Ile-de-France with a new household waste sorting and pre-treatment centre by 2025. Implementation of river logistics.

WHY?

- Extend the sorting capacity of selective collection from 45,000 to 60,000 t/year;
- Receive 350,000 tonnes/year of residual household waste (RHW);
- Receive 40,000 t/year of food waste before it is transferred to specialised sites (see the obligation to sort food waste at source in 2024);
- Maintain the waste collection activity with a capacity of 15,000 tonnes per year;
- Create a recovery centre with a capacity of 500 tonnes per year;
- Use the waterway via the Canal de l'Ourcq to limit transport by lorries.

GENNEVILLIERS Biodigestion

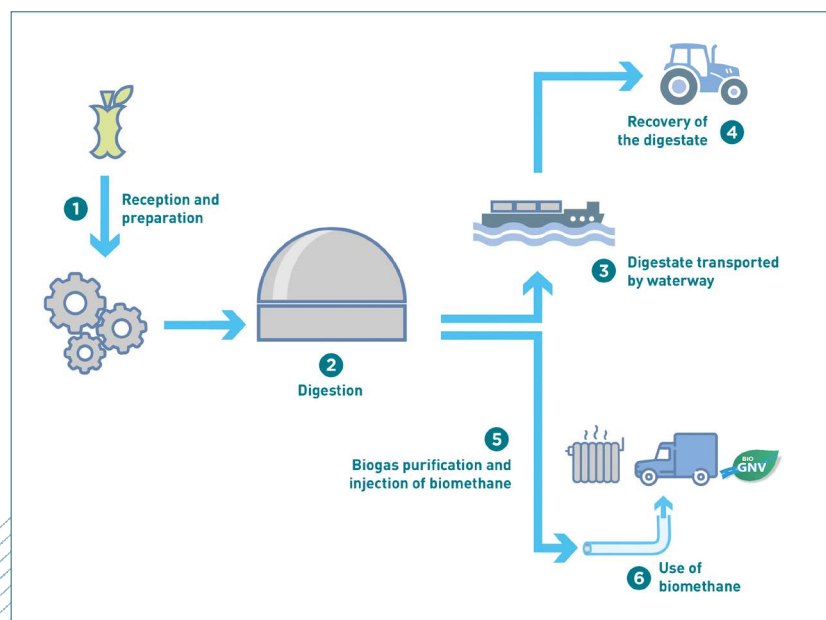
The Biodigestion project is led by Syctom and Sigeif (Public supplier of gas, electricity and local energy in Île-de-France). It consists of creating a digestion facility on the banks of the Seine that will treat up to 50,000 t/year of food waste.

WHY?

- Recover food waste;
- Develop local production of renewable energy, biomethane or green gas;
- Produce a fertilizer, the digestate (what remains from the organic matter after the process of conversion into gas);
- Offer a local bio-waste treatment solution;
- Use river transport.

Cost of the works:
around €30 million excl. tax
If economic balance is achieved, it will be commissioned in 2024.

Block diagram of Biodigestion



As the leading European public waste treatment operator and owner of its facilities, Sycotom is developing ambitious and innovative R&D projects. In addition to opening up new and effective prospects for waste recovery, this approach consolidates its technical, industrial and institutional leadership. It also promotes local solutions to accelerate the ecological transition.

Cométha project

A solution for co-treating sludge from waste water treatment and residual organic fractions (ROF) from household wastes in order to convert them into biogas, without any return to the soil.

WHAT OBJECTIVES?

- Demonstrate the relevance of the mixture of materials;
- Develop co-digestion processes to obtain an optimal energy balance;
- Pave the way for large-scale recovery energy productions, with a level of performance unmatched until now;
- Promote innovative thermochemical technologies.

Cost of the project:
€94.2 million

THE APPROACH

In an unprecedented legal framework called the Innovation Partnership, Sycotom and SIAAP have selected 4 consortia that bring together companies, laboratories, universities and startups for Phase 1.

2018 > 2019

PHASE 1

- **4 contracting CONSORTIA**
- **15 LABORATORIES involved**
- **100 PEOPLE involved**
- **90 MEETINGS (400 HOURS)**
- **300 LABORATORY TESTS**
- **20 TONNES OF INPUTS tested**
(6 TONNES OF ROF, 11 TONNES OF SLUDGE AND 2.3 TONNES OF HORSE MANURE)

2020 > 2022

PHASE 2: Construction and operation of industrial pilots

Two consortia have been selected to pursue the research programme and design/build/operate two pilot units to test the solutions developed in Phase 1 on the field and in real operating conditions:

- Tilia / GICON France-Biogaz / DBFZ / Fraunhofer IGB
- John Cockerill / Sources / UniLaSalle / UTC

> 2023

PHASE 3: Build the industrial unit that will implement the most appropriate recovery solution.



An information pack can be downloaded from the Sycotom website:
www.cometha.fr/en



CO₂ capture

In 2016, Syctom launched an international research programme whose objective is to use the CO₂ from the flue gases produced by the incineration of household waste to grow microalgae and ultimately produce biomaterials such as bioplastics or biofuels.

The site of the Saint-Ouen-sur-Seine recovery centre, in which a large-scale urban requalification operation and a programme to improve its environmental performance are underway, was chosen as an experimental laboratory.

OUR PARTNERS

An international research consortium that brings together Setec Environnement, the Royal Swedish Institute of Technology in Stockholm, the Ecole Polytechnique de Montréal, the Ecole des Mines de Paris and the Advanced Technical Centre for Renewable Energies (CTAER) of the University of Almeria (Spain).

WHAT PROGRESS HAVE WE MADE?

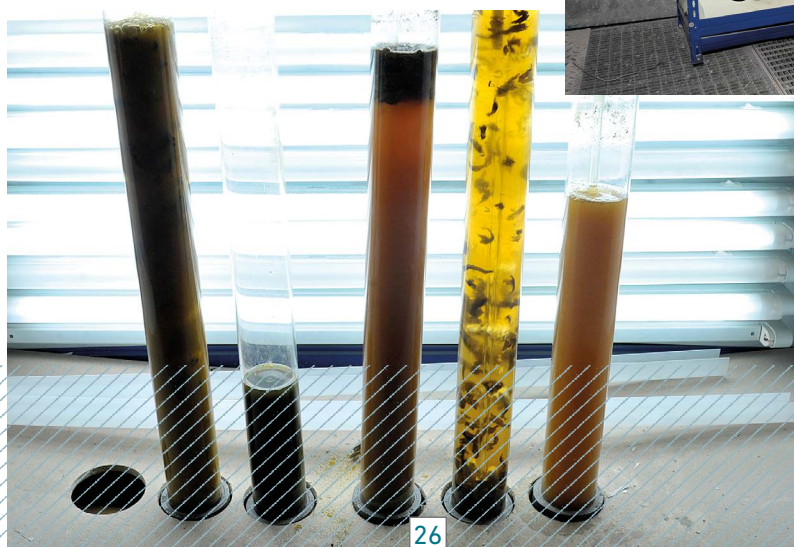
After an initial phase of selecting algal strains compatible with the flue gases from Syctom's facilities, the work focused on designing the bioreactors with the aim of making them as efficient as possible.

The first pilot unit has been built and was commissioned in February 2020 in the laboratory of the University of Almeria.

After the verification tests (comparing theory and practice) and the necessary adjustments inherent in any pilot, these facilities can be transferred to our treatment sites.

At the same time, steps are currently underway with a specialist firm to file patents in order to protect the results obtained and allow them to be shared.

Cost of the project:
€3.2 million incl. tax



In 2017, Syctom wanted to consolidate its position with respect to the European Union in order to strongly promote its stance on the treatment of household waste. It is supported in these activities by a lobbying firm in order to monitor the decision-making processes that impact our activities.

PROGRESSIVE POSITIONING

- Internal training modules to familiarise the management team with the functioning of the EU and the challenges
- Meetings in Brussels to meet MEPs, members of the Commission and the permanent representations of France and Île-de-France
- Site visits organised for members of the Commission
- Closer ties with certain players such as the European Platform for the Circular Economy and members of the European Plastics Pact

PUBLICATIONS

Our contributions on various topics have been published (position papers and responses to consultations):

- Eco-design
- Plastic strategy
- Single-use plastic
- New action plan for a circular economy
- Identification of possible indicators for effective waste management
- Consultation on the Climate Pact
- Others

SYCTOM'S INTERNATIONAL POSITIONING

Since 2014, Syctom has contributed to France's development aid policy by supporting international solidarity projects. Syctom also advocates the cause of waste treatment with international bodies and provides technical expertise to mega-cities and States.

INTERNATIONAL SOLIDARITY

CALL FOR SYCTOM WASTE SOLIDARITY PROJECTS

WHY?

- Accelerate the ecological transition in developing countries;
- Develop projects to improve waste management.



**38 PROJECTS
SUPPORTED
since 2015 in
18 countries
for a total
amount of
€3.5 million**

MAKE WASTE TREATMENT AN INTERNATIONAL CONCERN

WHY?

- Develop awareness about the special characteristics of waste treatment in dense urban areas;
- Participate in the emergence of localised solutions;
- Bridge the link between waste treatment / sanitation / fight against global warming / resource conservation.

HOW?

- Speeches at international events (COP, World Water Forum, UN events, etc.);
- Respond to requests from international organisations (UNESCO, Medef International, World Bank, etc.)

RESPOND TO PARTNERSHIP-CONSULTING REQUESTS

The City of Nur-Sultan in Kazakhstan, Metro Manila (Philippines), the Russian Federation have requested the expertise of Syctom.

WHY?

- Syctom is the leading European public operator;
- The logic of mutual aid between competent authorities is developing to protect the environment;
- Confidence of international donors.

HOW?

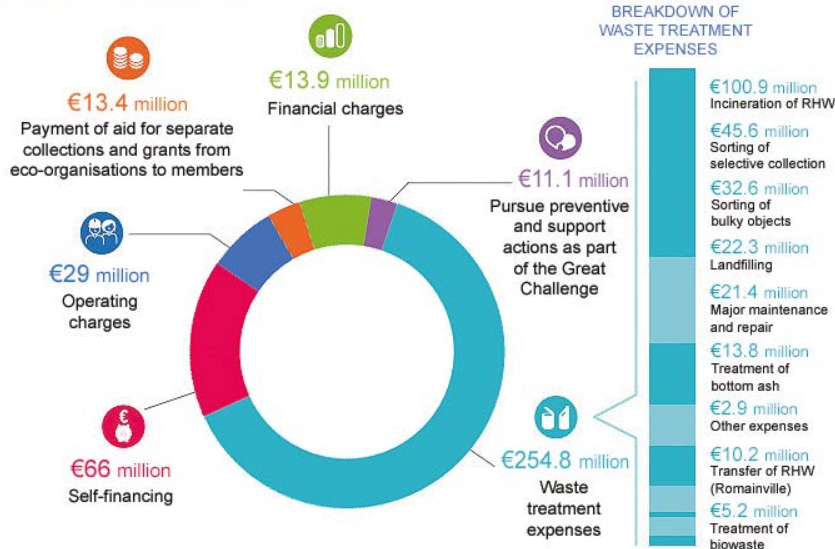
- Consulting activity / pilot projects / technical expertise

THE 2020 BUDGET: SYCTOM IS INVESTING FOR THE FUTURE

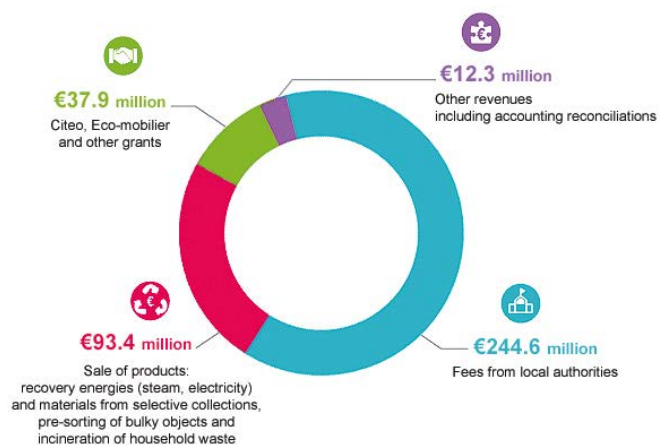
Syctom's 2020 budget stands at €757.4 million (€388.2 million for operation and €369.2 million for investments)

OPERATING BUDGET

OPERATING REVENUES



OPERATING REVENUES



FOCUS ON THE CONTRIBUTIONS OF LOCAL AUTHORITIES

The pricing introduced in 2016 is maintained for the year 2020, offering member local authorities stability in their contributions and encouraging the development of sorting.

These contributions consist of:

- A share of: 5.60 €/person
- A share according to the tonnages contributed:
 - Household waste and bulky waste: 94 €/t

The net treatment cost of RHW is 84 €/t, so we "earn" €10 per tonne, which provides an incentive for sorting:

 - Selective collections: from €0 to €30 per tonne depending on the performance (cost price for Sycotom: €146 in 2020)
 - Food waste: 5 €/t (cost price for Sycotom: 148 €/t)

15

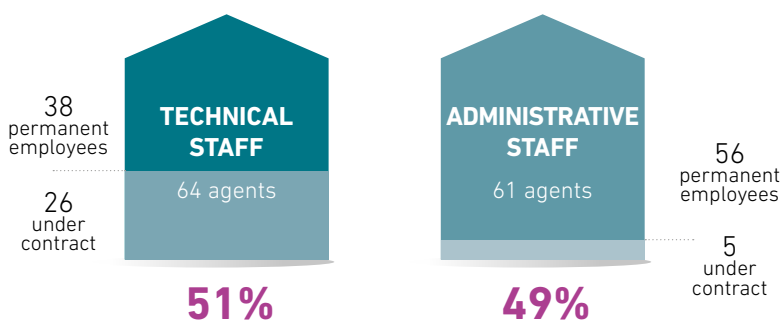
HUMAN RESOURCES AT SYCTOM

Sycotom's Human Resources Department is primarily responsible for recruitment, the career management of agents, payroll, training, social dialogue, health and safety and retirement.

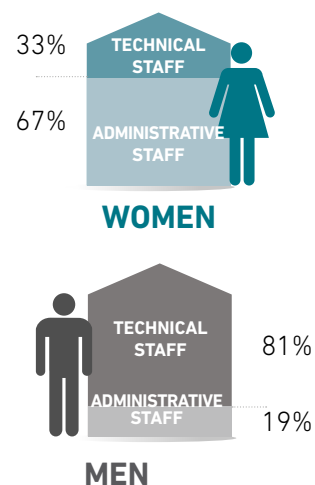


The workforce (as on 31 December 2019)
129 agents working in a permanent position

A GOOD BALANCE BETWEEN ADMINISTRATIVE AND TECHNICAL STAFF



SYCTOM'S WORKFORCE IS
PREDOMINANTLY MADE UP OF WOMEN: 62%
 OF THE AGENTS IN 2018.





| l'agence
métropolitaine
des déchets
ménagers

The public authority for the sustainable management
of household waste in the Paris region

35, bd de Sébastopol - 75001 Paris | www.syctom-paris.fr

    @lesyctom