



Sustainable Waste Management

Transforming waste into
Resource

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- To be a Leading brand in the Global market

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01

Waste Management

The context



Waste Management

Context Information

The production of waste **generates impacts on human health and the environment**, both through the waste itself generated, which has to be collected, treated and disposed of, and through the associated waste of resources.

To avoid and reduce these impacts, the **waste policy focuses on preventing waste and using it as a resource**, continuing the life cycle of materials and returning materials and energy to the economy.

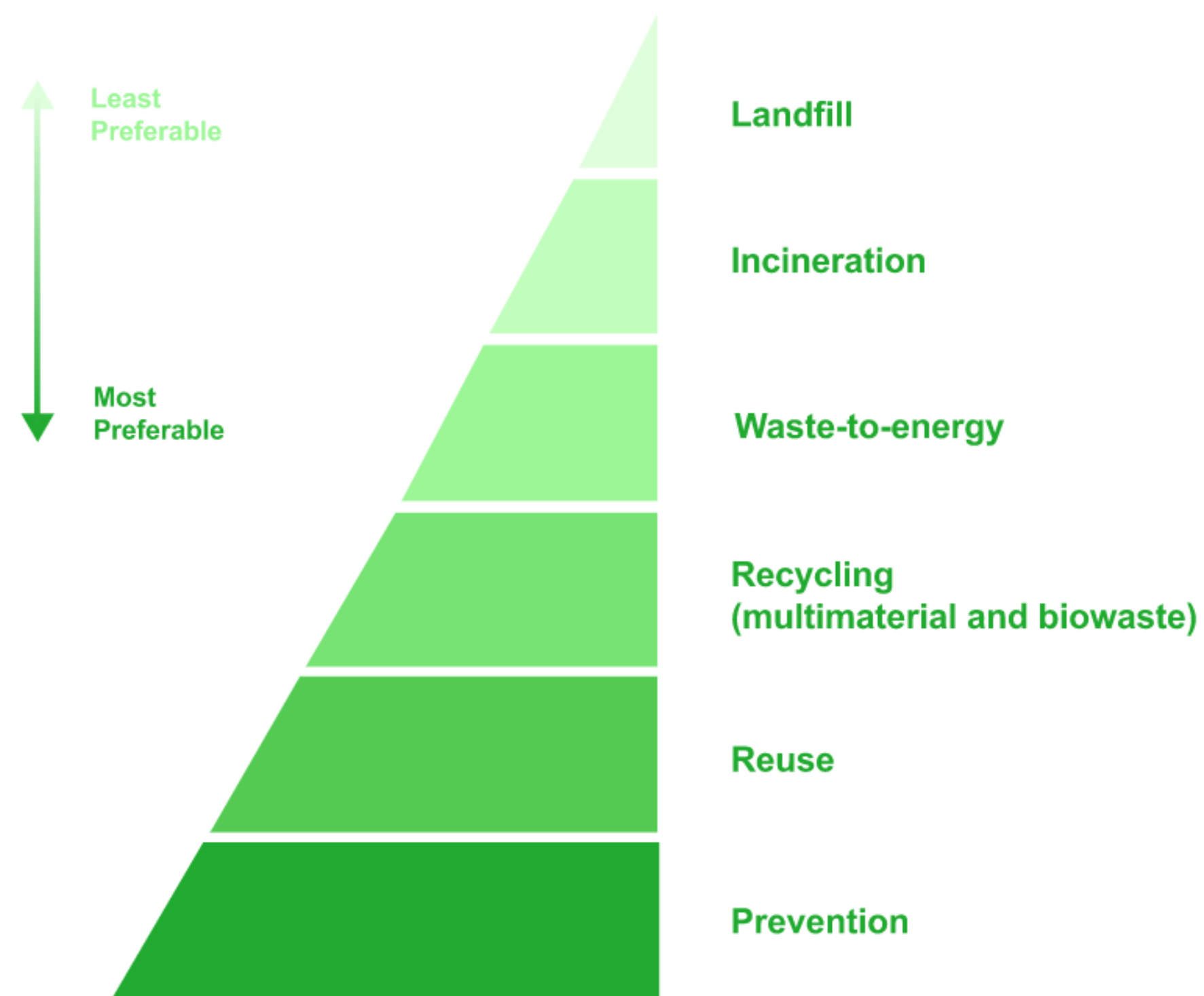
The waste policy also seeks to ensure the **sustainable management of waste** that cannot be prevented, ensuring **efficient use of natural resources and promoting the principles of the circular economy**.



Waste Management

Context Information

Waste Management Options Hierarchy



Waste management is based on a hierarchy, defined by the EU Waste Framework Directive, to be applied by EU Member States in waste management.

Waste **Prevention and Reuse** are the most preferred options, followed by recycling (including composting), then energy recovery, while waste disposal through landfills should be the very last resort.



Waste Management

Context Information

The (potential) role in the Circular Economy of a Sustainable Waste Management:

- ✓ Protection of human health and improvement of habitability;
- ✓ Protection of nature and ecosystems;
- ✓ Provision of secondary raw materials, nutrients and soil quality improving materials;
- ✓ Production of green and renewable energy and fuels;
- ✓ Mitigation of climate change;
- ✓ Economic development by generating jobs and wealth to cities and regions.



Urban waste management Portugal



Legislative Context

National Policies

In Portugal, the fundamental **guidelines** about Waste Policies are given by the following instruments:

- ✓ National Waste Management Plan (PNGR);
- ✓ Strategic Plan for Urban Waste (PERSU);
- ✓ Strategic Plan for Non-Urban Waste (PERNU), which replaces the previous sectoral plans (Hospital Waste and Industrial Waste);
- ✓ Biowaste Strategy.

PNGR 2030 and PERSU 2030 were published in March 2023



Legislative Context

National Policies

The National Waste Management Plan, PNGR 2030, which replaces PNGR 2020, is based on three strategic objectives:

- 1 . **Waste Prevention** of in terms of quantity and danger;
- 2 . Promoting **efficient use of resources**, contributing to a circular economy;
- 3 . Reduce **negative environmental impacts** through integrated and **sustainable** waste management.



Urban Waste Management

In Portugal

Urban waste management **services** cover the following phases:

- ✓ Collection and transport;
- ✓ Sorting;
- ✓ Valorization/disposal.

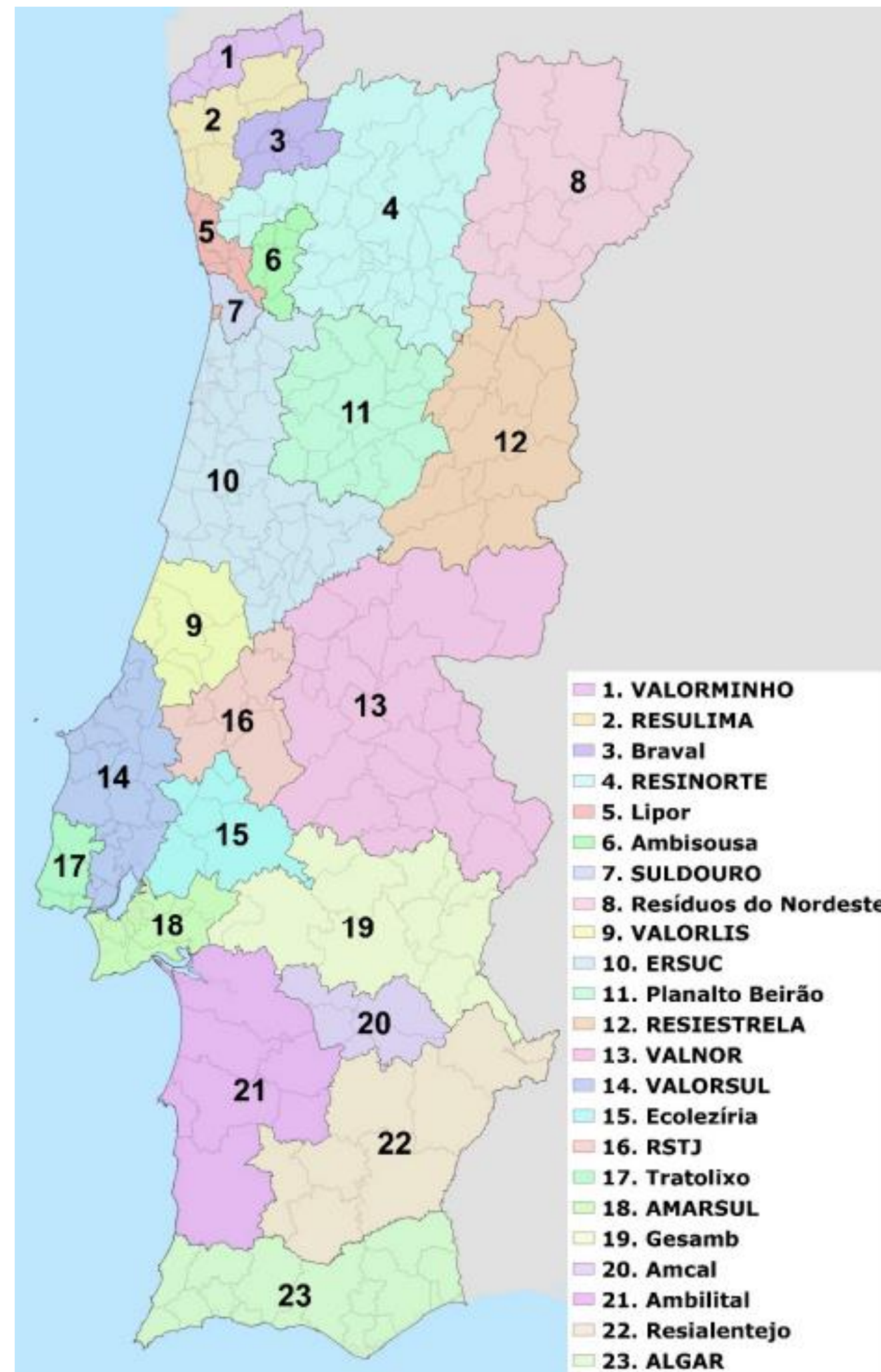
The service management entities (23) is called SGRU:

- 12 Multimunicipal, which manage about 66% of the RU produced,
- 11 Intermunicipal



Urban Waste Management

In Portugal



The treatment is ensured by **23 SGRU** - service management entities.

Each of these systems **has differentiating characteristics**, both in terms of the **number of municipalities, geographical area and population covered**, and in the **socio-economic context** they cover, too.



Urban Waste Management in Portugal

Infraestrutura | 2021

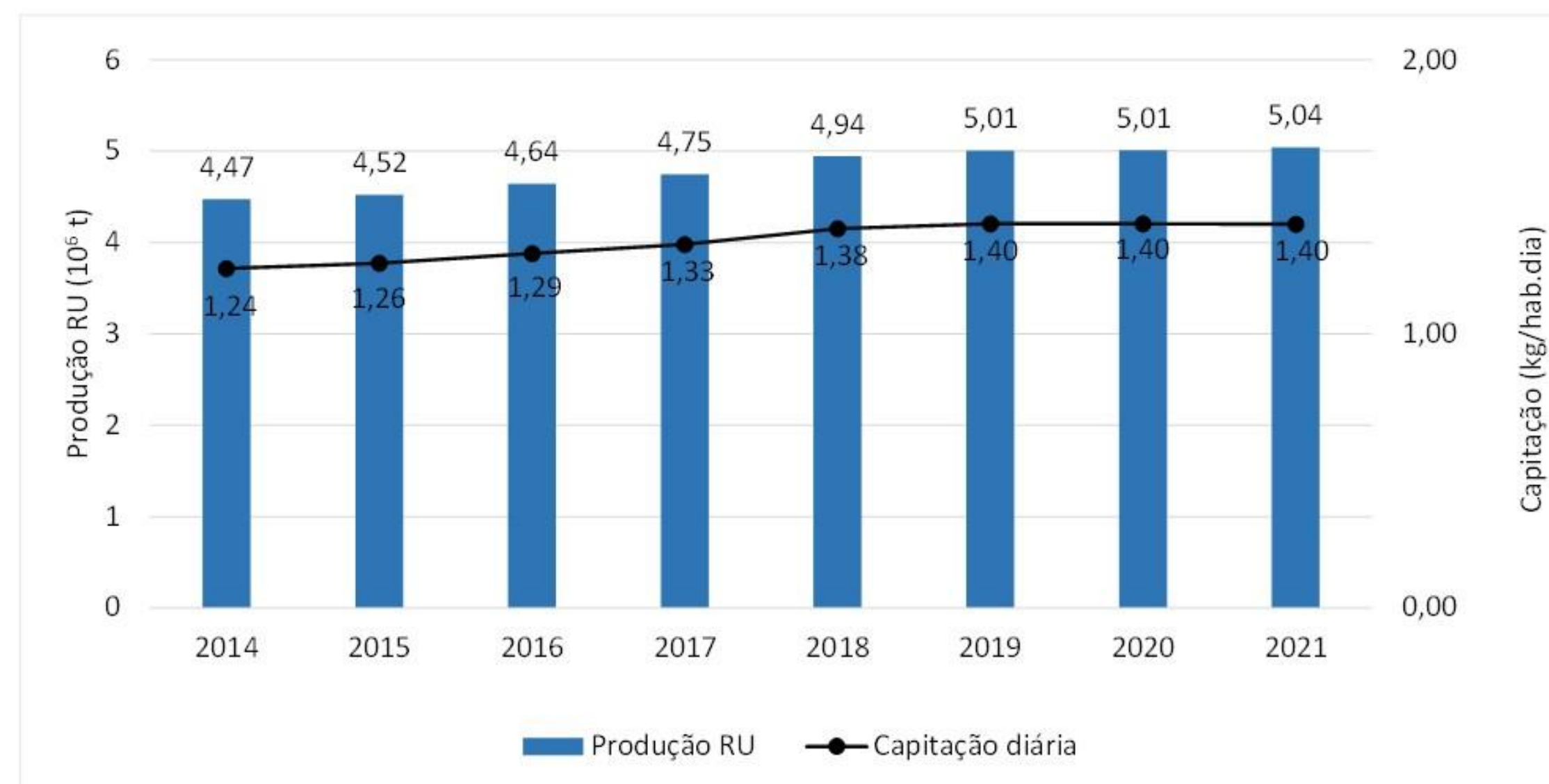
Infraestruturas	N.º
Estação de triagem	30
Tratamento Mecânico	6
Tratamento Mecânico e Biológico	19
Tratamento Biológico (dedicado a biorresíduos recolhidos seletivamente)	5
Unidades de Produção de Combustíveis Derivados de Resíduos (CDR)	5
Central de Valorização Energética	2
Aterros	34

Number of existing urban waste management **infrastructures**, in Portugal Continental, in 2021



Urban Waste Management in Portugal

Production | 2021

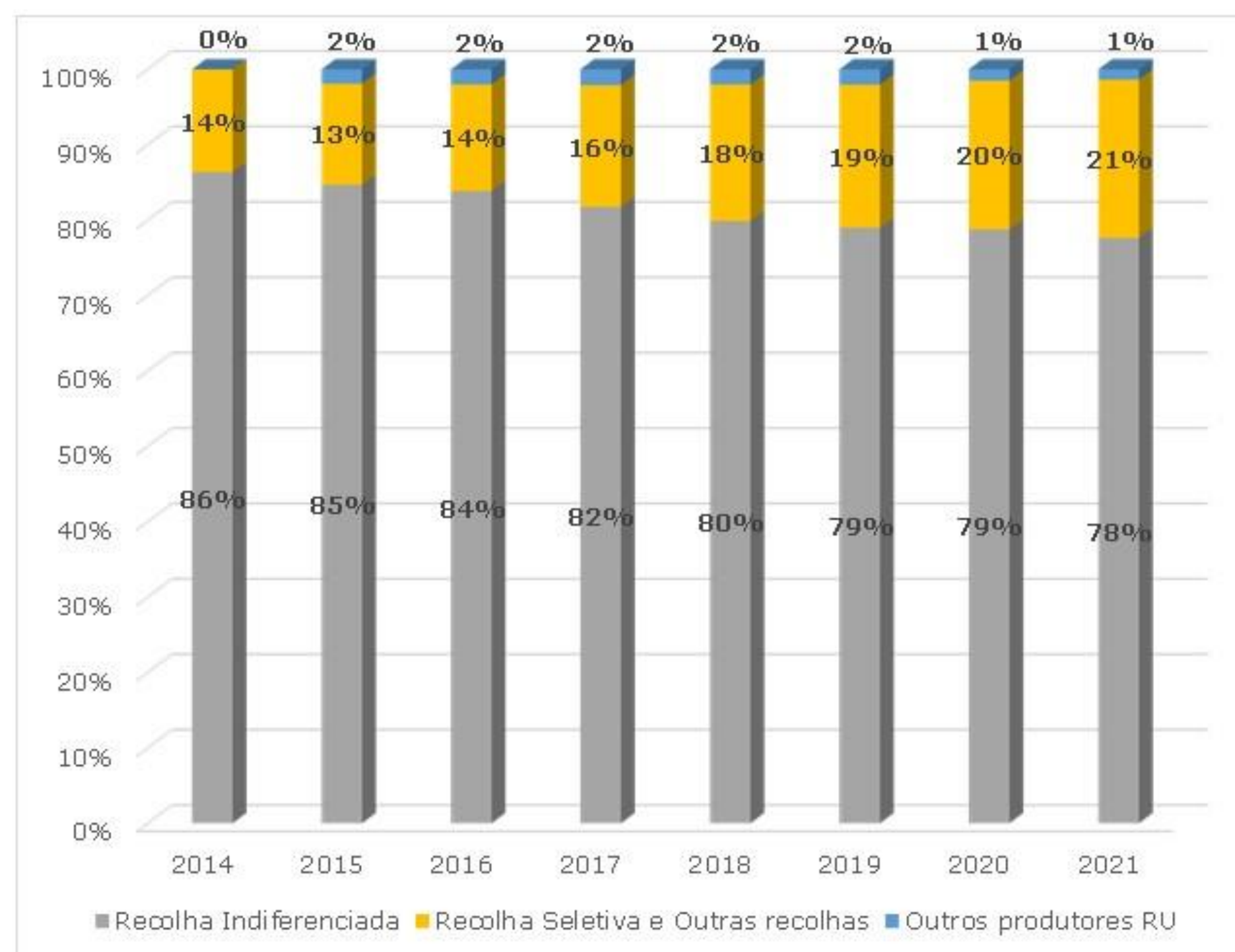


The production of urban waste in Portugal Continental remained at approximately **5 million tons in 2021**, which corresponds to an annual **per capita of 511 kg/inhabitant.year**, that is, a **daily production of 1.40 kg per inhabitant**.



Urban Waste Management in Portugal

Collection | 2021



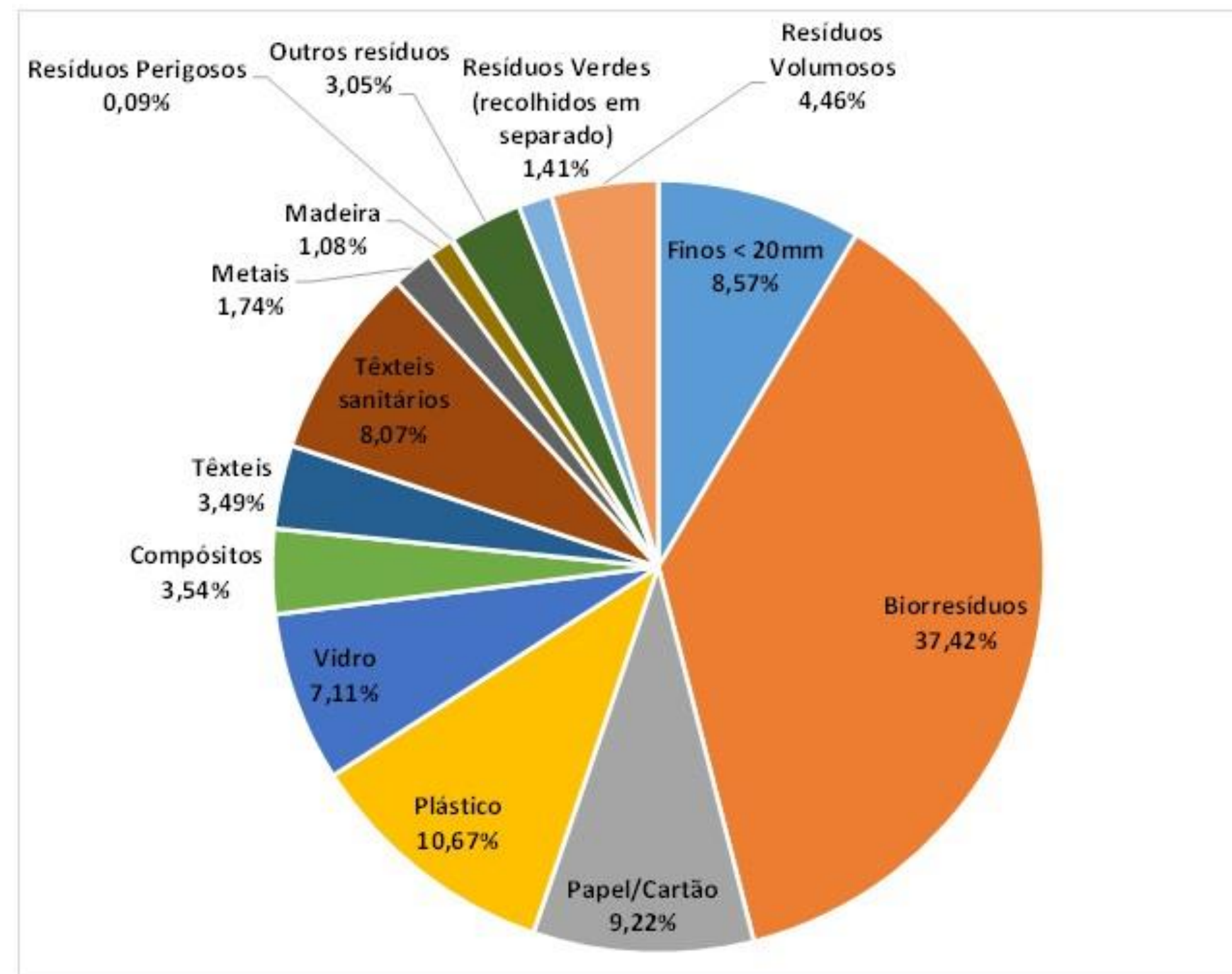
In terms of collection, there are no significant differences over the last few years, with **mixed collection** being the preferred type of collection for the collection of urban waste.

Although in recent years there has been an **increase in the number of infrastructures for selective collection**, this **hasn't had the proportional impact on the quantities collected selectively.**



Urban Waste Management in Portugal

Physical Characterization



The figure shows the results of the **average physical characterization** of the urban waste produced, based on the technical specifications:

- ✓ high contribution of **biowaste fraction**, representing around 37% of the total;
- ✓ plastic (10.6%), paper/cardboard (9%), sanitary textiles (8%) and glass (7%).



Some Final Comments



Urban Waste Management

Challenges

- ✓ Intensify the role of the waste management sector in boosting **reindustrialization** and improving levels of regional circularity;
- ✓ Increase **recycling rates**, limit the use of **landfills**, value **biowaste** and **selective collection** of other flows;
- ✓ High **quality standards** of materials collected, which constitute the raw-secondary materials;
- ✓ Reinforce **cooperation** and articulation (academy, companies, associations, etc.);
- ✓ Mobilize **citizens and consumers** towards lifestyles that promote well-being and sustainability.



01

LIPOR

Our history.



An organisation with history



Baguim do Monte (Gondomar) | Ermesinde (Valongo) Complex

LIPOR – Municipalities Association for Sustainable Waste Management of Greater Porto was founded in 1982 as a Municipalities Association.

We specialise in waste treatment and recovery – managing, recovering and treating municipal waste generated by our 8 Associated Municipalities. But we go further.



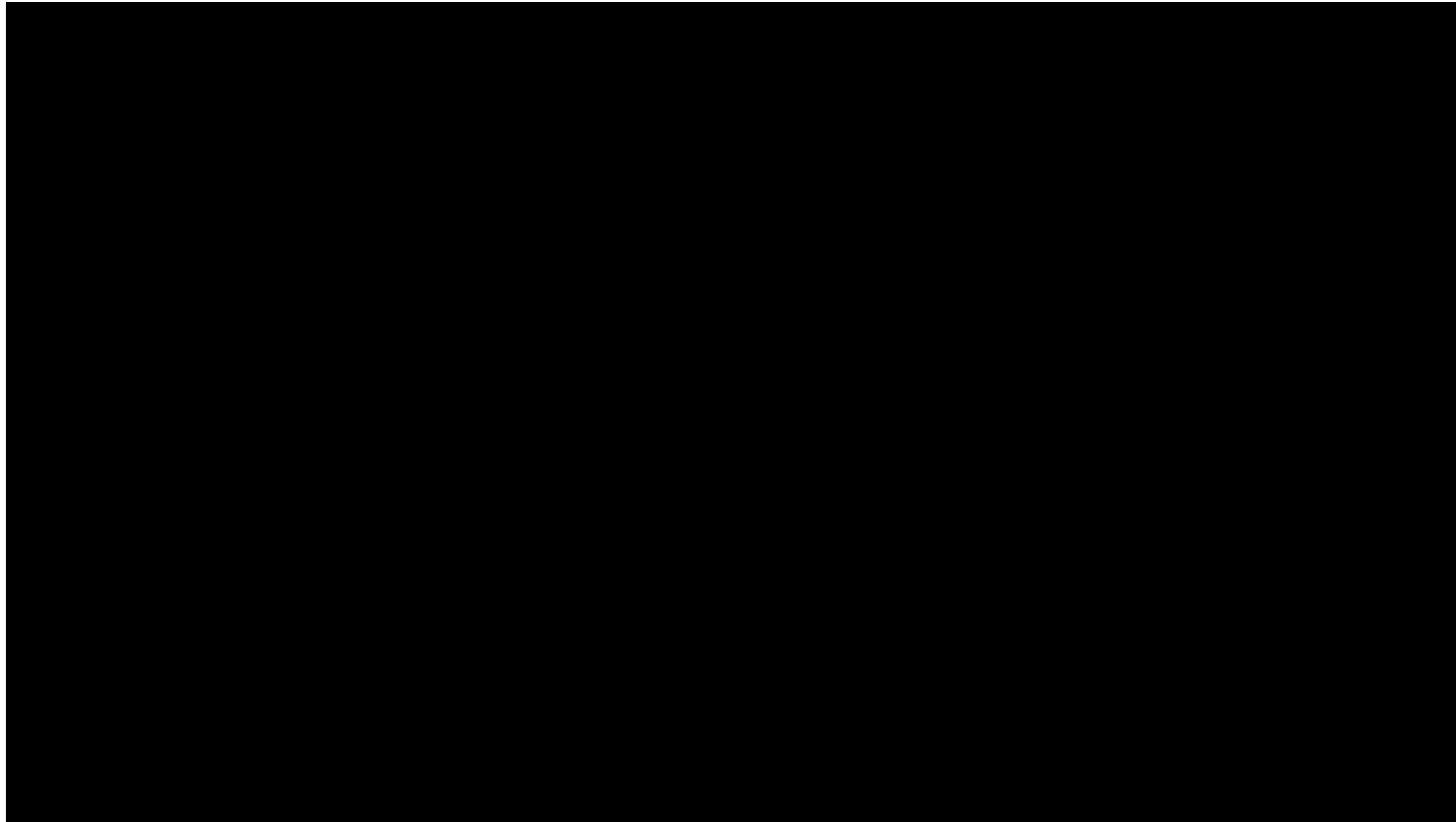
One million citizens

Relevant numbers

	We serve		We treat
Region	8 Municipalities	1.000.000 Citizens	500.000t Municipal Waste
Country	1% Geographical Area	10% Population	12% Municipal Waste Generated



An organisation with history



We value
waste as
a resource.

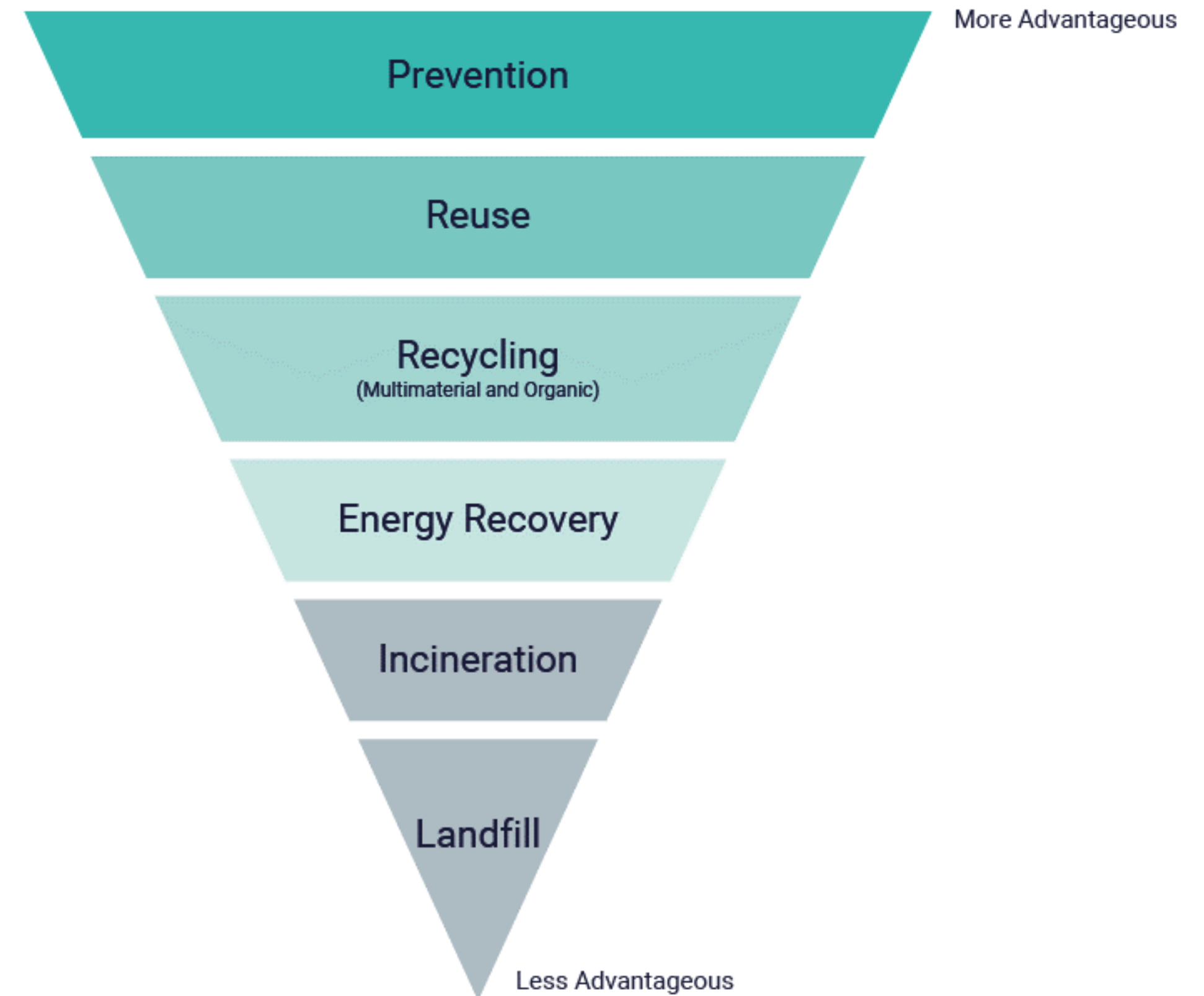


We sort and recover

Keeping in mind this regeneration and Waste Prevention, LIPOR prevents waste in the production stage, reduces waste at its source and reuses products to save resources.

We do everything we can to put less and less waste in landfills.

So that nature can prevail more and more.



We prevent, transform and regenerate

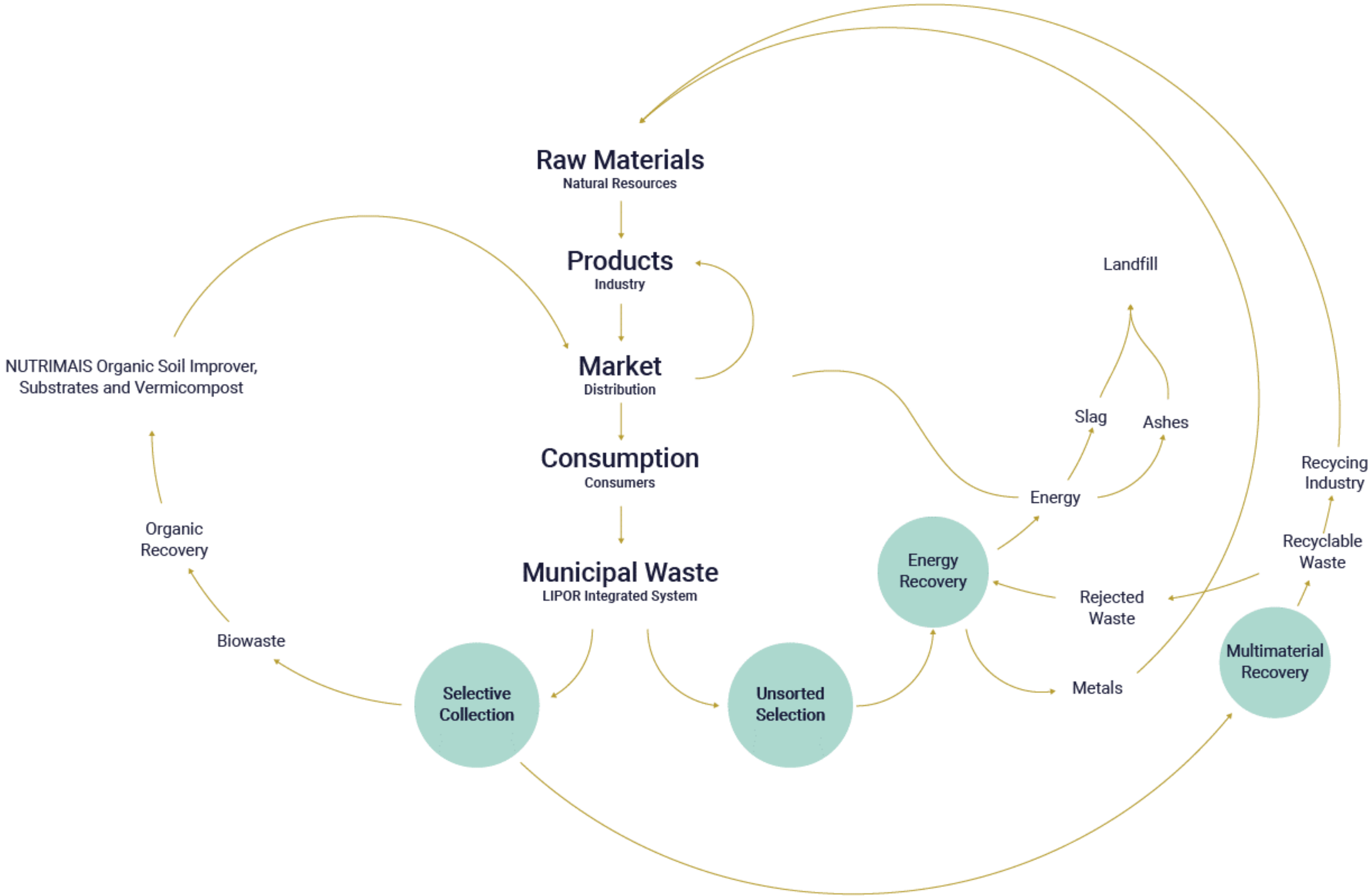
It is part of us

Biowaste Fraction	Multimaterial Fraction	Public Procurement	Communication and Awareness	Training	Monitoring	Knowledge Generation
Home and Community Composting	Waste Reduction and Reuse	Promotion of Sustainable Public Procurement Practices	Good Practices and Communication Actions on Waste Prevention	Training / Events and Community awareness raising on the adoption of waste reduction and reuse practices	Measurement of the impact of reduction and reuse actions	Process improvement regarding circularity and less use of resources
Sustainable Green Spaces	Textile and WEEE Reduction and Reuse		Community Awareness, Education and Training Actions			
Food Waste						
City Loops						



We foster knowledge, we scale up

We make an Impact



We foster integrated waste management



LIPOR

Baguim do Monte (Gondomar) | Ermesinde (Valongo) Polo

Sorting unit, composting unit and operational support and management areas



LIPOR II

Maia Polo

Energy recovery unit, technical confinement (landfill) and WWTP



We foster integrated waste management

Goals for 2020

We stand by
collection

50

kg/inhab.year

We stand by reuse
and recycling

35%

We stand by less garbage
and more waste

10%

Total biodegradable waste (RUB)
diversion



We foster integrated waste management

Goals reached in 2022



We stand by
collection

63.83

kg/inhab.year



We stand by reuse
and recycling

36.17%



We stand by less garbage
and more waste

1.2%

Total biodegradable waste (RUB)
diversion



Integrated waste management and multimaterial recovery

We received
82,610t
of waste for multimaterial recovery

+4.3%
In comparison with 2021

We avoided the emission of
111.904t
CO₂ equivalent



Infeed and pre-sorting



Manual pre-sorting



Bales for recycling industries



Door-to-door selective collection

Pilot project “Recycling is Giving More”

Door-to-Door Selective Collection enables better waste sorting and recycling, avoiding biodegradable or recyclable waste from being thrown in the trash.

After all, Recycling is giving more.



Integrated waste management

Specialist services



Ecoshop

Citizens use this card to hand us their waste (in Drop-off Sites and the Adventure Park) and receive vouchers for different services.

Over 4,000 ECOSHOP users



Ecofone

Free recyclable waste home collection service for all residents in Porto city, and particularly for the trade, services and catering sectors.



Integrated waste management and organic recovery



We've implemented projects to improve compost quality:

- Selective Collection of Green Waste
- Selective Collection of Green Waste in Cemeteries
- "Catering Operation" Project
- Selective Collection among Large Producers
- Door-to-Door and Proximity Selective Collection with conditional access



We received

51,909t

of waste for organic recovery
-3,1% in comparison with 2021

We receive, recycle and restore to the earth what comes from the earth

100% natural organic soil improver, which preserves or improves the natural fertility of soils.

It results from a careful selection of materials and the composting of food and green waste collected at the source.

We produced
8,849t

of Compost
Data from 2022

We avoided the emission of

3,477t

CO₂
Data from 2021



We produce and transform



We collected

26,981t

of Food waste in 2022



We collected

24,928t

of Green waste in 2022



Yes to energy recovery!

No to landfills.

Garbage received is subjected to a burning process, which produces water vapour that generates electricity in a turbine. This electricity supplies your house.

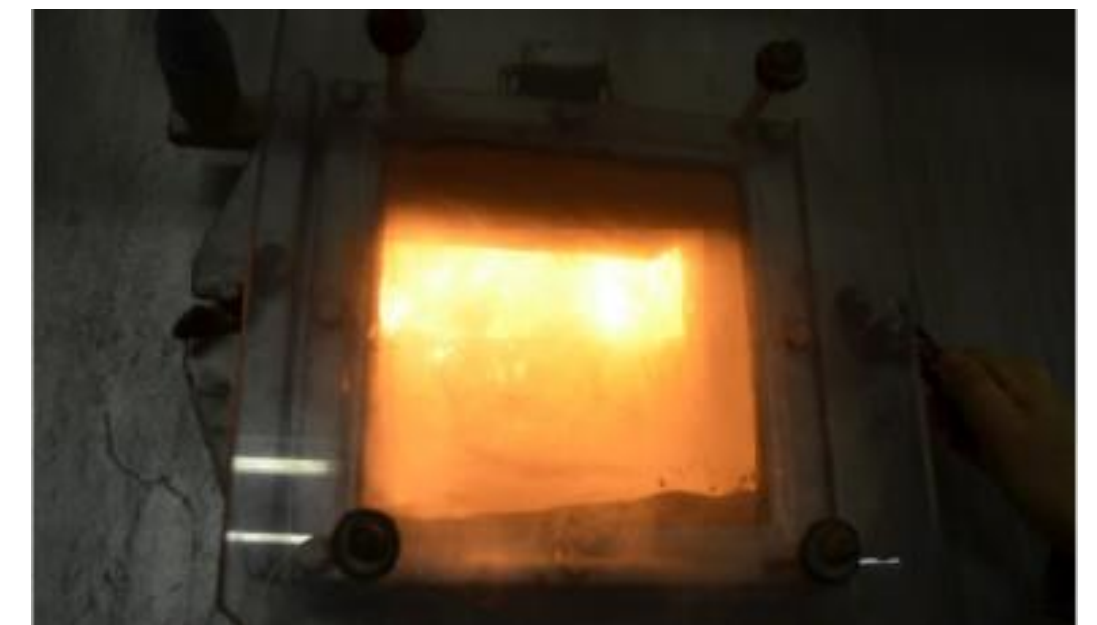
The energy derived from garbage is enough to supply a city every day.

We received
393,752t
of Waste for
energy recovery

-1.2% in comparison
with 2021

We received
-0.8%
Waste for
technical confinement

in comparison
with 2021



We say yes to renewable energy

Energy Recovery Plant

We produced
189,543
MWh
Electricity

We avoided
41,510 t
CO₂eq



Data from 2021

Photovoltaic Plants installed in CVO and Adventure Park

We produced
4,950
MWh
Electricity

We avoided
2,327 t
CO₂eq



Cumulative data from 2013 to 2021

Biogas Plant

We produced
503,51
MWh
Electricity

We avoided
312 t
CO₂eq



Cumulative data from 2008 to 2021



Management systems certification

We strive to continuously improve the performance of our activities.

We put certified Management Systems in place regarding different scopes:

training, environmental, social, energy, quality, and health, safety and hygiene conditions for all

Employees, in their different workplaces.



Quality Management



Environmental Management



Health, Safety and Hygiene Management



Social Accountability Management



Innovation Management



Energy Management



03

Commitment

Our contract with Humanity.



Contract

Purpose

Every day we build a better world.

Vision

We want to participate in the global market and set trends towards a sustainable future.

Mission

To transform waste into new resources through the implementation of innovative, circular practices, generating and sharing value.

Values

We are ambitious and passionate. We are creative and think positive. We are responsible and rigorous.

We are ethical and a TEAM.

Policy

Within the scope of its sustainable management strategy, LIPOR focused its policy on Quality, Environment, Energy, Health and Safety, Social Responsibility and Innovation.



We promote the Circular Economy

Our commitment

Efficient management of

Resources

+

Promotion of Behavioural

Change

=

Our

Commitment

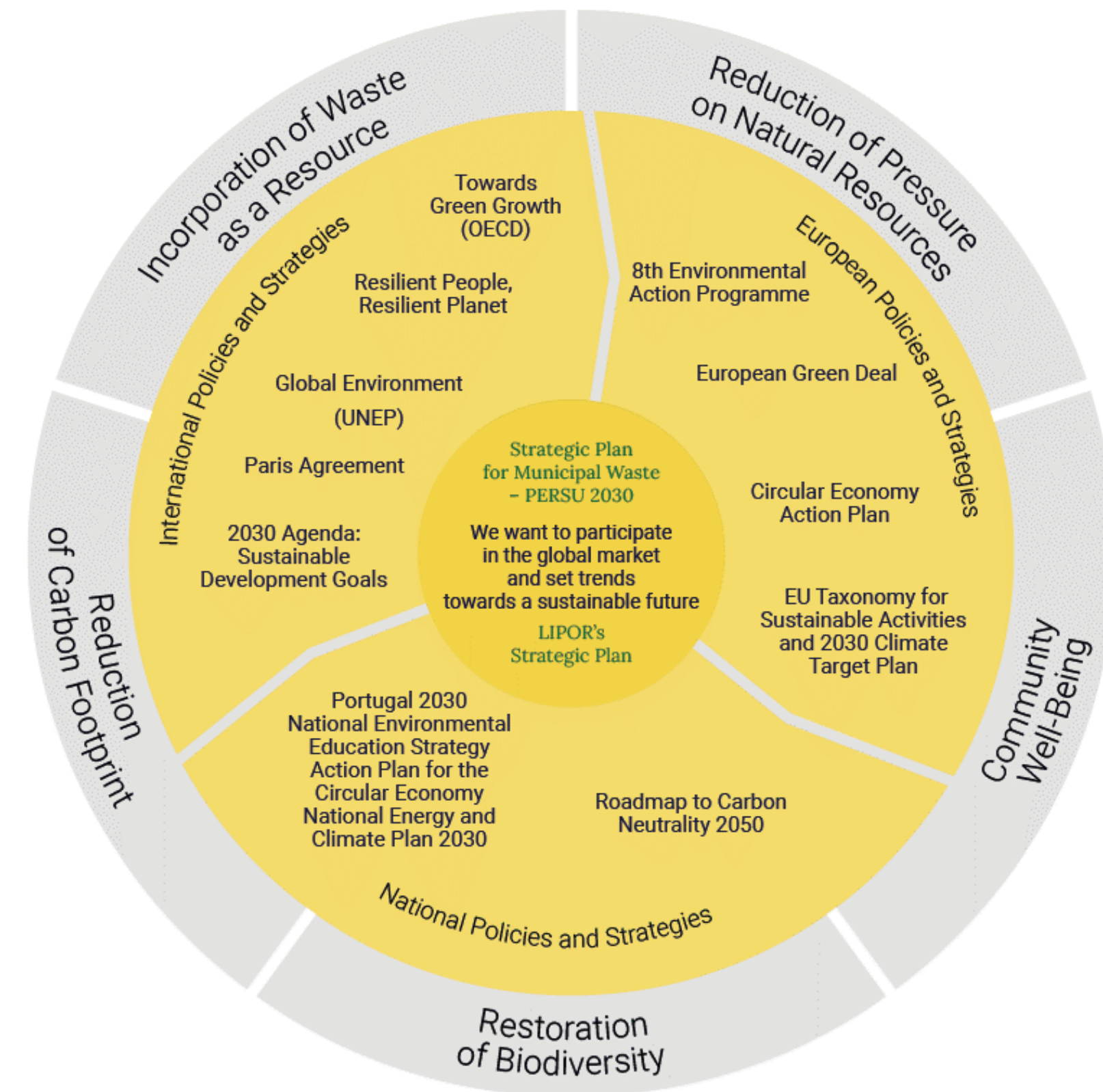


LIPOR and the environment

Unique identity

We've set our main guidelines in our Strategic Plan:

- We treat waste to protect nature and its biodiversity.
- We work on the prevention and mitigation of waste production.
- We promote strategies to combat climate change.
- Always with the environment and sustainable development in mind.



We undertake efforts

Our sustainable development goals



11 / 11



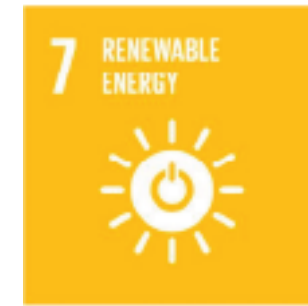
We produce Nutrimais natural soil improver.



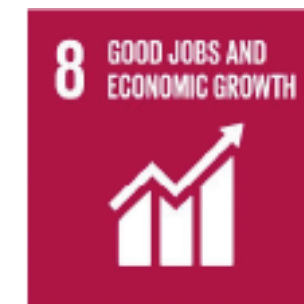
We develop an Environmental Education and Intervention Programme.



Tinto River Valorisation Project, which monitors water quality.



We transform garbage into sustainable energy.



We ensure the compliance of our Quality, Environmental, Occupational Health and Safety, and Social Accountability Management Systems.



We implement a structured Innovation process.



The Adventure Park is a public leisure space that promotes physical activity and awareness raising, resulting from the sealing and recovery of a landfill.



We develop a set of policies, programmes and actions that promote Waste Prevention, in order to boost change.



LIPOR 4M Strategy – less Waste, less Carbon, more Climate, more Biodiversity.



Biodiversity Promotion Strategy for the Greater Porto Region.



We establish National and International partnerships for sustainable development.



We formed Alliances with:



We undertake efforts

Our sustainable development goals



Partnerships

People

- Attracting and Retaining Talent
- Communication, Environmental Education and Training
- Development and Well-being of Employees
- Involvement with suppliers
- Ethics and Integrity
- Impact on the Community
- Health and safety
- Human Rights and Diversity

Planet

- Energy Transition and Climate Change
- Biodiversity
- Circularity and Transformation of Waste into New Resources
- Product and Service Quality and Reliability

Prosperiy

- Financial Balance of the Organisation
- Incentive for new Businesses and Opportunities
- Brand and Reputation



But it isn't enough to treat waste!

We need citizens to cooperate and
act with us.



We engage with our stakeholders

We engage with stakeholders:

- To identify the material topics that are relevant for the management and external reporting;
- To optimise the alignment between management practices and society's needs and expectations;
- To anticipate and mitigate risks, and identify new opportunities;

- Always with the environment and sustainable development in mind;
- To build transparent and trustful relationships, contributing to better decision making;
- To learn with them, leading to process and product improvements and innovations.
- To create long-term value for our stakeholders and the organisation.



04

Action

We do everything for the environment.



People First.



People drive us

Human capital 2022

Social Benefits granted to Employees:

- Health
- Events organised by us
- Education for their children
- Several established Protocols

210

Employees

11.388

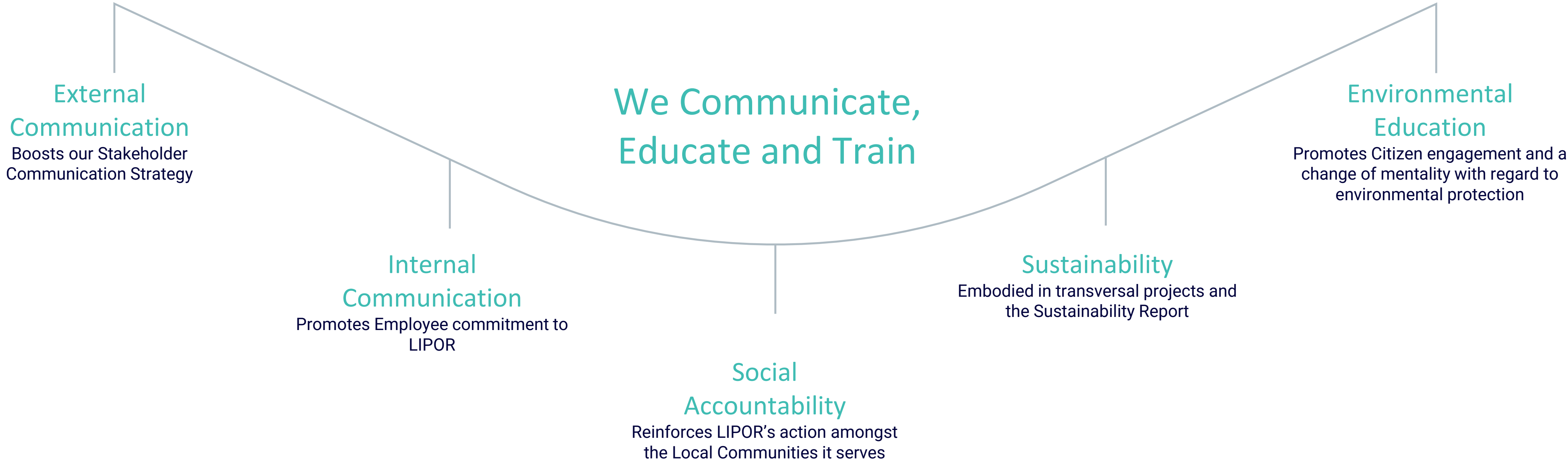
Training Hours

47.25

Training hours/
employee



Environmental communication, education and training



LIPOR Academy

Tailor-made training

Academia
lipor
Conhecimento Sustentável



With LIPOR ACADEMY, we enhance competences through training and qualification, using advanced educational methods and equipment.

Online Academy

Technical Training

Advanced Training

BIO Training

Tailor-made
Solutions for
Companies

Accredited Training
for Teachers

We've organised

352

Training
Courses

We've held

2,873

Training
Hours

We've developed

74

Tailor-made
Solutions

We've reached

8,486

Trainees



Environmental Education

2013-2022



331

Participating
Institutions

220

“Green Heart”
Certified
Institutions

150

Renewed
Certifications

13%

Average
Recycling
Increase in
Institutions

9,071

Developed
Actions

180,014

Participants



We communicate, educate and train

We've received

33,968

Adventure Park and Ecological Trail
Visitors

We've organised

3

Editions of Junior Academy



Corporate Social Responsibility

Resource management

Bottle Caps Operation*

Your waste helps social causes

We've helped

658

Institutions

We've treated

940 t

of Bottle caps

We've donated

1,816

Devices

We've invested

€ 616,254



Protocols and partnerships



Crew



CineEco



Estrae



Res2Valhum



Bioblitz



Ecobulk



Hortíssima



JUNTAR Programme



D-NOSES



Associates



Walking towards Zero impact on the Planet



Our action for the environment



Biodiversity



Environmental Education

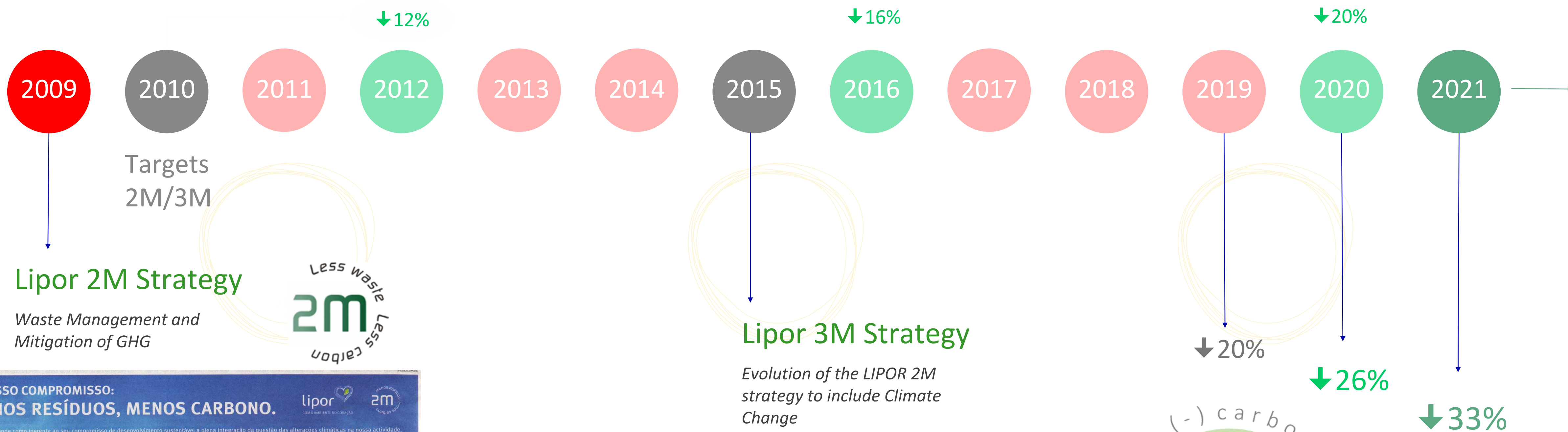


Waste as a Resource



13 years tackling Climate Change

Roadmap



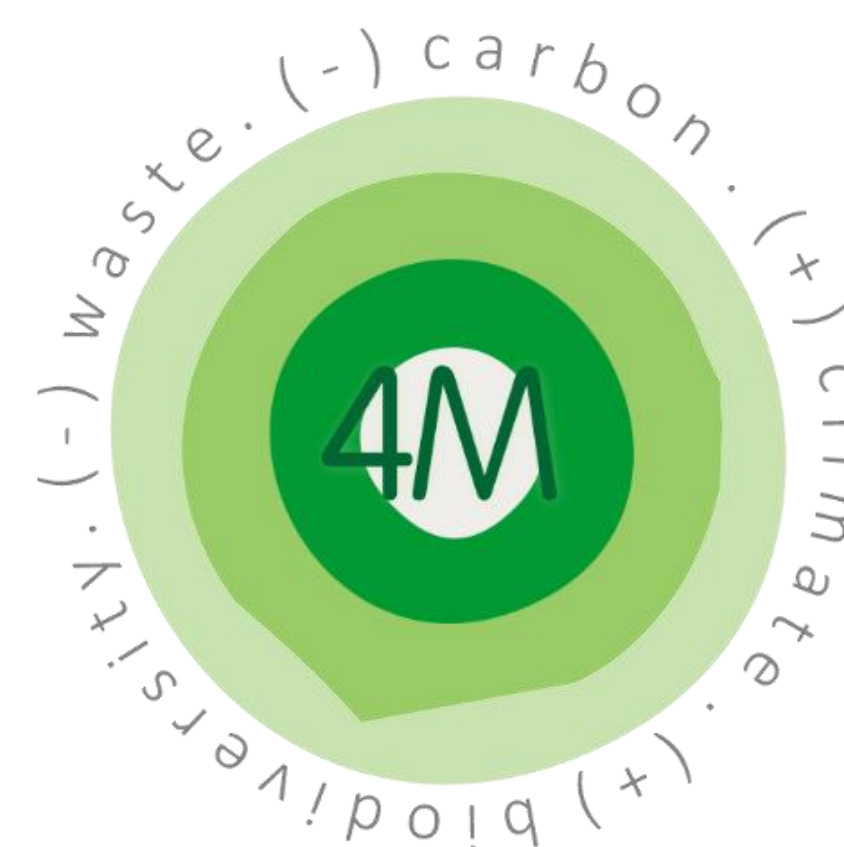
Lipor 2M Strategy

Waste Management and Mitigation of GHG



Lipor 3M Strategy

Evolution of the LIPOR 2M strategy to include Climate Change



Climate change

GHG reduction by 2030

-35%

We've reached -30.7% in 2022



Less Waste

We strive for efficient Waste management, giving priority to a circular Business model;

Less Carbon

We approach the Carbon-Energy relationship converging towards decarbonisation and energy transition;

More Climate

We boost our commitment to adaptation to climate change;

More Biodiversity

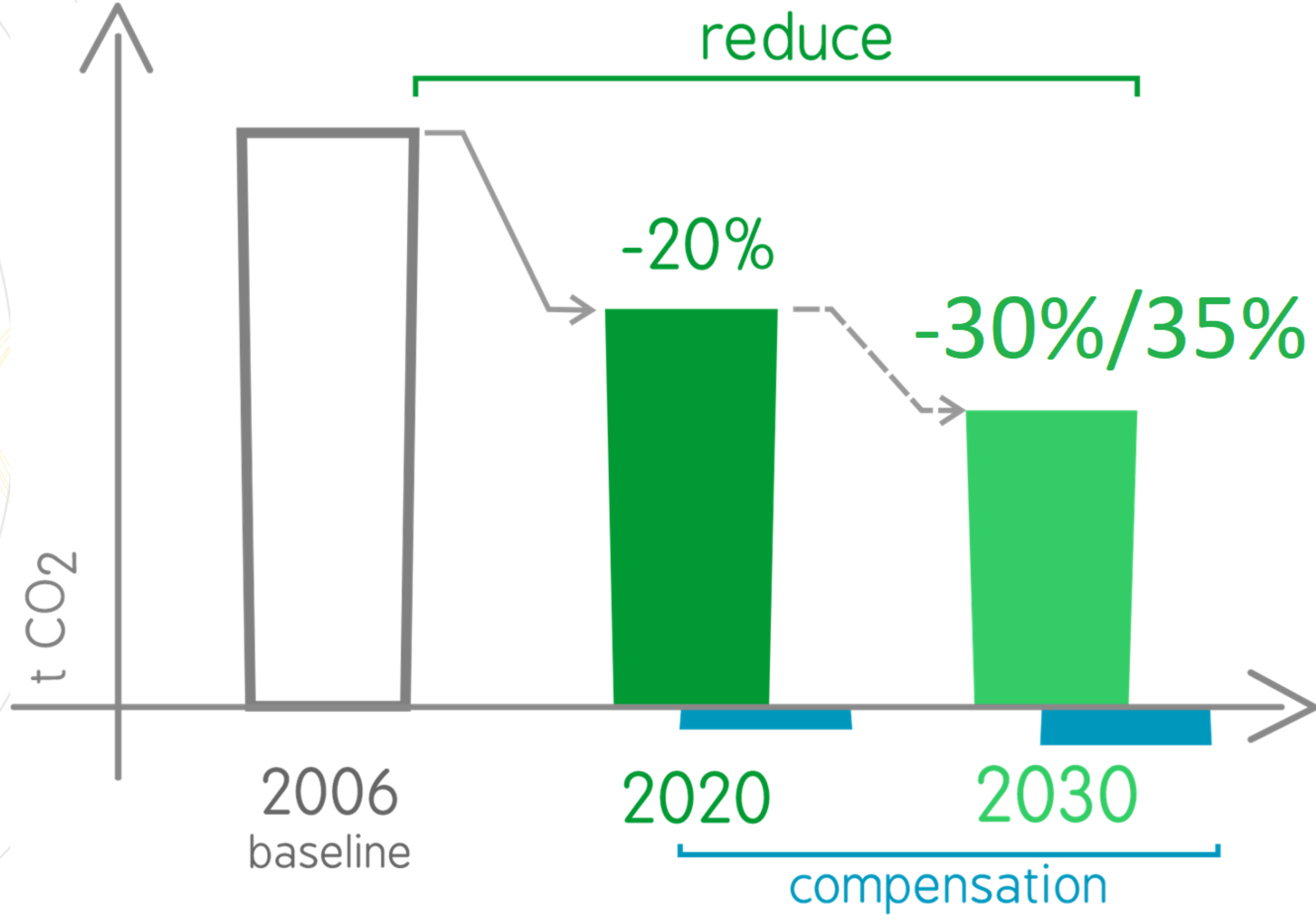
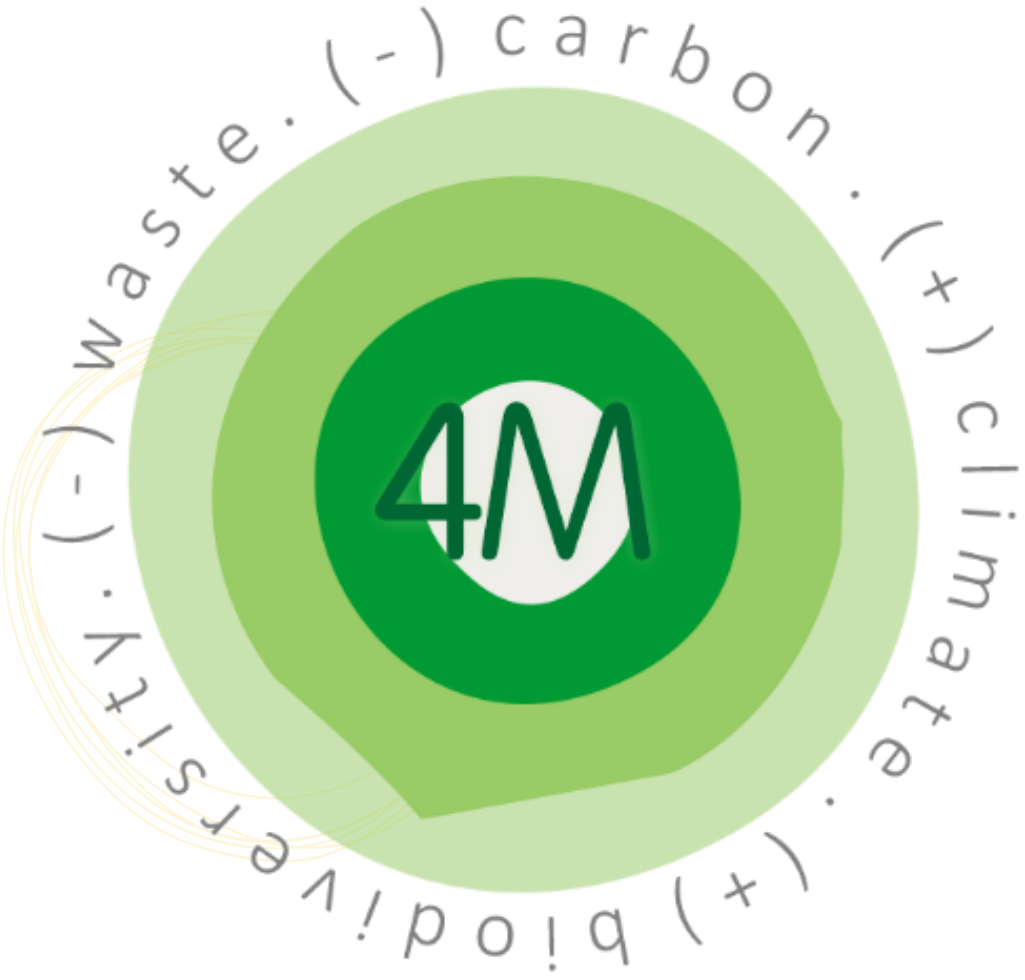
We further promote biodiversity in our activity scope.



GHG Target

Footprint

lipor



Our B side

Biodiversity



Adventure Park
Environmental and
Landscape Rehabilitation
Project



Biodiverse Green Spaces
Project



Biodiversity and
Ecosystem Services
Management Plan



Square Metre
Programme



Tinto River Valorisation
Project



To be a **Leading brand** in the Global market



We receive recognition for our work

2022

€52,441,053

Turnover

€20,994,490

EBITDA Investments

We invested

1.96€/citizen

in Environmental
Education and Training

We invested

€1,847,166

in the Community



We do not satisfy needs. We anticipate them.

Research, Development and Innovation



2021: COTEC Innovator Status

2020: Red Dot Award
Design Concept – Materials and Surfaces

2018: FAMAE Design



LIPOR, Horta da Formiga, Horta à Porta, NUTRIMAIS,
Ecoshop, Centro Ambiental de Laúndos,
Fertor, Binup and Wallie Brands.

Patent no. 106819 “Waste Disposal
and Collection System and Process”

BinUp Technical Design



We do not satisfy needs. We anticipate them.

Research, Development and Innovation

70

Prototypes

89

Technical/Scientific Publications

645/10000

Innovation Scoring

160

Partnerships

55

Doctoral Graduates

39

Approved Applications



We project LIPOR into the world

External markets

We offer customised solutions, with a team of 44 Consultants dedicated to International Projects.

We've established business relationships with 29 countries.



12
submitted
Proposals, 5
approved

22
submitted
Expressions
of interest

1
Business Case
published in 3
languages

Participation in
8
International
Work Groups

3
Visits from
abroad
(6 countries)

Participation in
3
Business
Missions



We project LIPOR into the world

Impact

Selective collection projects
implemented in

400

Tunisian Schools

4

Training actions (Mozambique
and Argentina)

1

Participation in the creation of
National Platform for Municipal
Solid Waste Systematisation and
Monitoring in Argentina



05

Results

We receive recognition for our work



Integrated report

2022

The Report was drawn up according to the following guidelines:

International Integrated Reporting Council (IIRC);

Global Reporting Initiative (GRI) Standards, Core Option, and International Standard for sustainability reporting;

International Financial Reporting Standards (IFRS), as adopted in the European Union for Financial Statement purposes.



In order to ensure data reliability and veracity, information regarding sustainability reported in our Integrated Report 2022 was properly subjected to independent external assurance.

We've adapted to new trends in financial and non-financial data reporting, after reporting our annual results for 18 consecutive years!



We stand by recovery

2022

51,909t

Waste for
organic recovery

82,610t

Waste for
multimaterial recovery

393,752t

Waste for
energy recovery

8,849t

Nutrimais

82,610t

Recyclable Waste

189,543MWh

Electricity



External recognition

LIPOR obtained the “COTEC INNOVATOR 2021” Status,

as a recognition of its high standards of financial soundness and economic performance achieved and, particularly, its INNOVATION competences.

- Winner of the Public Sector category of the “Excellence at Work Index 2021”.
- One of three institutions selected for the Workplace category, in the 7th edition of the #BeActive Awards organised by the European Commission’s DG EAC – Sport.
- LIPOR’s Adventure Park & Ecological Trail received the international Green Flag Award, as well as the Special Award for Innovation.
- LIPOR’s “4M Strategy” was honoured in the 7th Edition of the “Recognition of Social Responsibility and Sustainability Practices” initiative, promoted by APEE (Portuguese Business Ethics Association).

We received
5
External awards
and accolades
in 2021

We received
63
Awards
from
2000 to 2021



We set trends

Communication

Campaign

We've adapted the language used to communicate on recycling

Door-to-Door

Collection

We've prioritised material quality and sustainability

Employee

Profile

We've developed the organisation's human capital

Networked

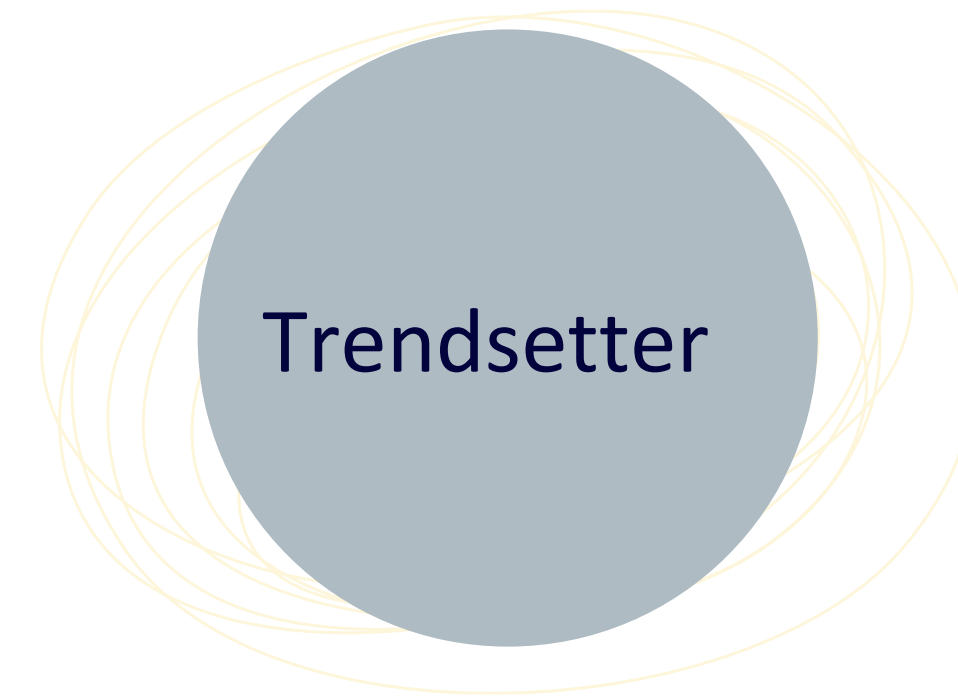
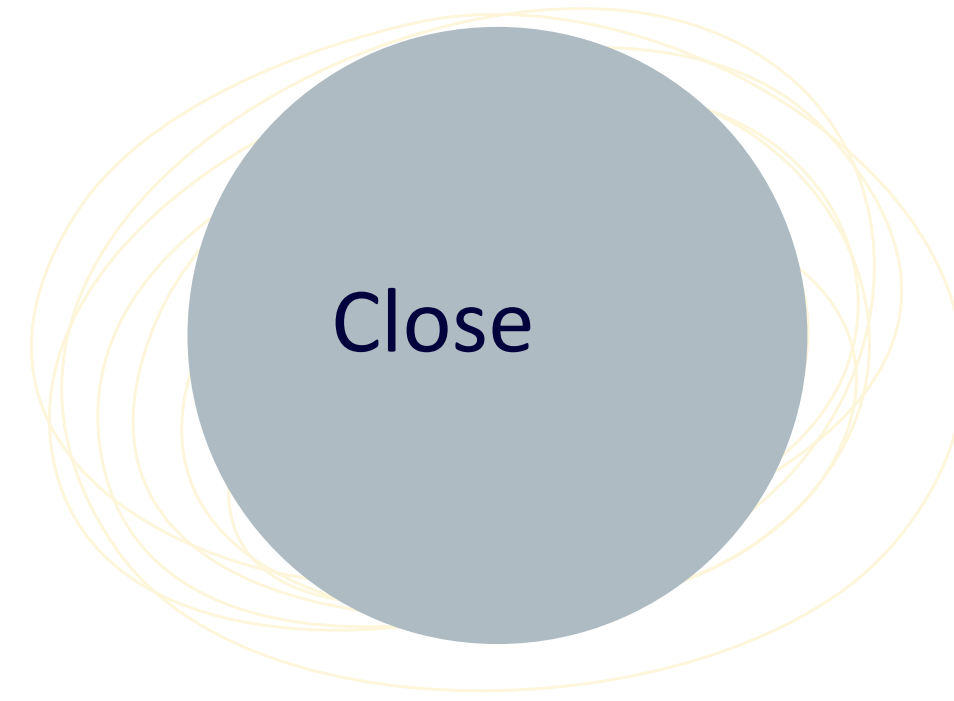
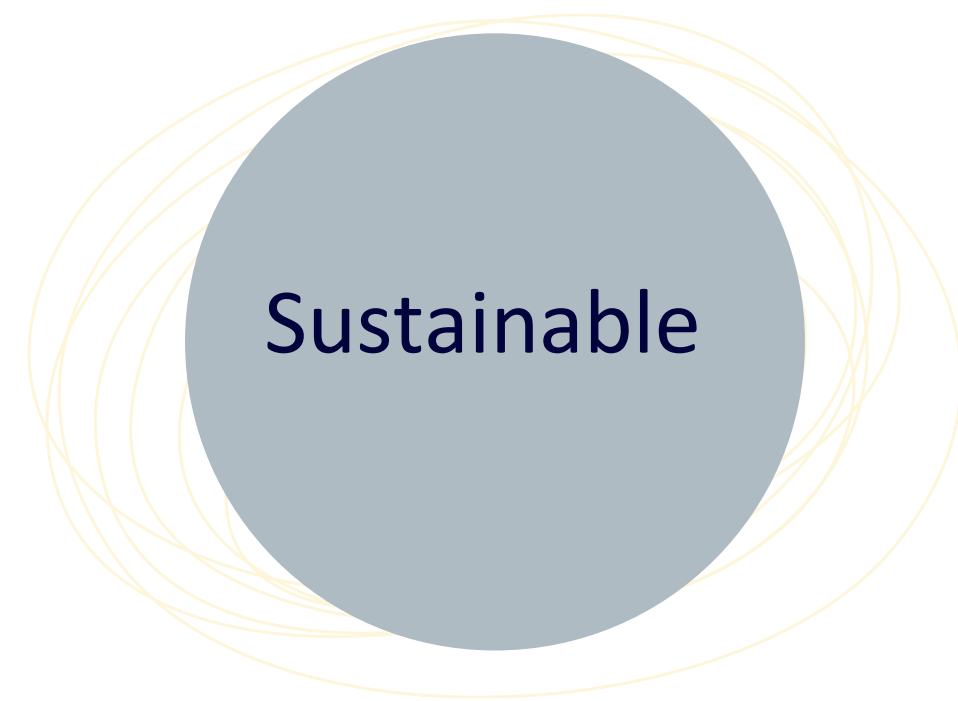
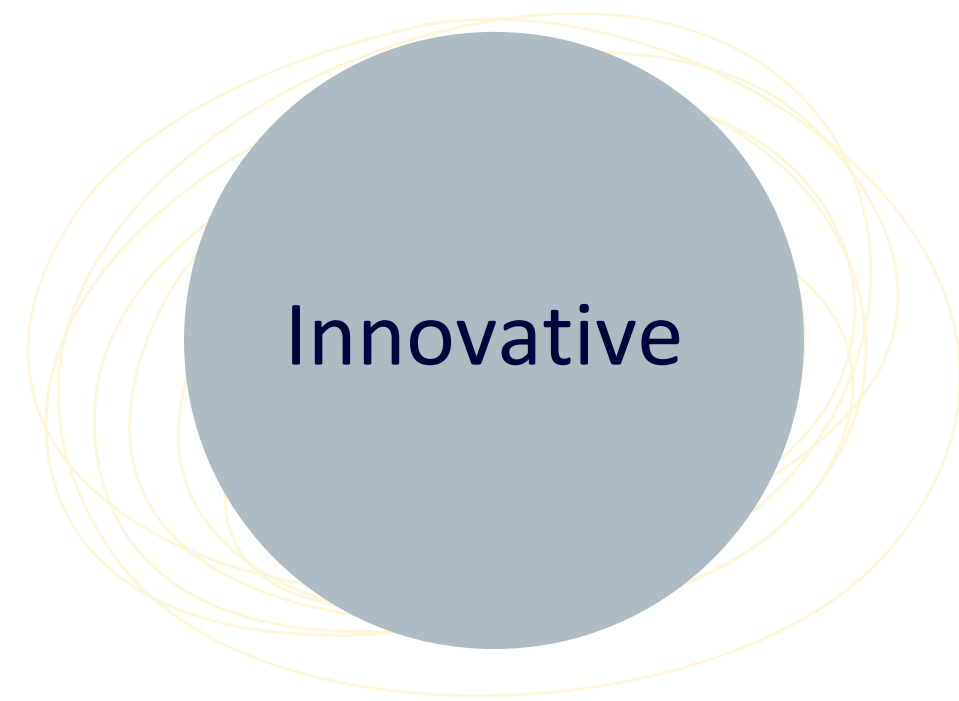
Co-creation

We've maximised innovation activities



We are inspired by the future

We are driven by creativity



What to expect
from LIPOR in the
next 40 years?



To continue
reinventing
tomorrow!



lipor



www.lipor.pt