

# Waste Prevention and Management in the Azores

## Contact

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## Executive summer

Azorean waste policy priority is the elaboration of regional legislation with the transposition of Waste Directives and the conception and implementation of planning management programs. So far we have two plans: *PEGRA* and *Plager.GOV*.

Thanks to these initiatives, by the moment there are also several waste facilities types for correct management, properly licensed by the environmental Azorean department, in almost islands, and the separated collection waste is a reality. This is a great effort from private initiative and in some cases with specifically financial support from European Union.

In the smaller Azorean islands, where the municipalities were revealing bigger difficulties in the construction of the necessary infrastructures, the Regional Government has assumed the responsibility to build waste facilities.

In addition to this, there was also created regulatory instruments like a tax for the disposal penalization and the *Ecocerv*, a penalization tax for the non-reuse beer bottles and cans. Another regulatory initiative was the creation of an entity responsible for the definition of quality service criteria and monitoring goals and waste management systems. To fund the activity of this entity the private and municipal waste management entities and companies pay a special tax.

In the environmental sector, the execution of activities attributed to the Environment Department of Regional Government includes its own responsibilities regarding planning, management and licensing of waste and environmental promotion and training. For the inspection actions it was created in 2008 a Regional Inspectorate for the Environment, a specialized service in the control and verification of legal requirements.

The Environmental Department promote in all islands training courses and environmental education on waste prevention and management, for general and specific groups like municipal technicians, inspection entities, schools, services of regional administration and to enterprises that produce and manage waste.

## Introduction

Azores as a Portuguese archipelago in the Atlantic Ocean about 1,500 km from Portuguese mainland and about 3,900 km from the east coast of North America is considered an Ultraperipheric Region of the European Union and an Autonomous Region of Portugal. The nine Azorean islands extend for more than 600 km with a total area of 2.346 km<sup>2</sup>. Their individual areas range a lot

between São Miguel's 759 km<sup>2</sup> e 17 km<sup>2</sup> Corvo's. The Azores are divided into nineteen municipalities which are further divided into 156 parishes. About 250.000 inhabitants are living in this archipelago.

In the context of Ultraperipheric Region, to reach a sustainable development is a real challenge so we are taking positive steps towards the protection of environment and human health by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use.

The purpose of this paper is to report the current situation of waste management in Azorean Autonomous Region, including the regional waste policy and strategies, wastes solution that already exist and are being planned to the Azores, waste regulation and inspection, conception and implementation of management programs, the promotion of environmental education and trainee and, finally, waste management and planning projects that are ongoing in the Environmental Department of Azorean Government.

### **Waste policy and strategies**

In the last few years waste policy has been growing in the Azores, since it was necessary to solve environmental problems and to develop waste management in the Archipelago. Waste management problems in Azores are related to absence of adequate solutions of waste treatment and disposal, the need to convert uncontrolled dumps to controlled disposal facilities or promoting of waste valorization, delay in selective waste collection and sorting, increase of packaging waste production and difficulty in reuse and valorization of packaging waste.

The Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste establishes the legislative framework for handling of waste in the Community (Directive 2006/12/EC) and the Directive 91/689/CEE about hazardous waste were transposed to Azores by *Decreto Legislativo Regional* n° 20/2007/A, 25 of August. The subject of this legislation is to define the rules on waste regulation and management in Autonomous Region of the Azores. It defines key concepts about waste management, planning and regulation and put in place the essential requirements for the management of waste, notably an obligation for an establishment or undertaking carrying out waste management operations to have a permit or be registered. It also establishes major principles such as an obligation to handle waste in a way that does not have a negative impact on the environment and human health, an obligation of the waste producer or holder to carry out the management of waste, an encouragement to apply the waste hierarchy, the promotion of prevention and reduction of waste production, and, in accordance with the polluter-pays principle, a requirement that the costs of disposing waste must be borne by the holder of the waste, by previous holders or by producers of the product from which the waste came.

According to this legislation, waste management operations require licensing or concession given by Environmental Azorean Department to ensure technical requirements of waste operations, in order to minimize the risk for environment and human health.

The planning requirements of the waste policy have led to the creation of regional waste strategies in order to achieve an environmental sustainability in accordance to Azorean specificities. The strategies are plans which outline how the Azorean Government intends to manage the waste produced each year. The waste management plans are related to waste in general and specifically to municipal wastes, industrial wastes, agriculture and forest wastes and medical wastes.

*Decreto Legislativo Regional* n° 20/2007/A, 25 of August, has been republished by *Decreto Legislativo Regional* n° 10/2008/A, 12 of May. In order to better define the Azorean waste policy, this law also publishes the Strategic Plan for Wastes in Azores, called as *PEGRA (Plano*

*Estratégico de Gestão de Resíduos dos Açores*). PEGRA is an operational plan that was established in order to solve the shortcomings that have been identified. PEGRA define a strategy to waste management in Azores based on waste prevention and reduction and on the definition of solutions of waste treating, valorization and elimination.

The System of regional waste information, called as SRIR, is created in *Decreto Legislativo Regional* n° 10/2008/A. This system has the purpose to add all the information about production, importation, exportation and management of waste and about operator of waste sector. SRIR regulation is being established in a *decreto regulamentar regional*.

Recently, according to the established in the n° 2 of article 19° and 23° of *Decreto Legislativo Regional* n° 20/2007/A and PEGRA, was published the *Decreto Legislativo Regional* n° 40/2008/A, 12 of May, that defines the economic, financial, enforcement and penalties regulation about waste management in Azores.

Three taxes are defined in this law: waste management taxes, waste regulation taxes and Ecocerv. Waste management taxes have the meaning to promote integrated waste management and to encourage the application the waste hierarchy. Waste regulation taxes can be cost covering charges about structural, economic and service quality regulation. Ecocerv is a tax that has the purpose to encourage the reusable packaging utilization that is only applied to alcoholic beer.

### **Waste planning**

Waste management strategies cover aspects such as the government's vision, the provision of waste data, issues relating to specific waste streams and key principles applicable to developing a system for sustainable waste management, such as the "waste hierarchy". The regional strategies are also deals with waste diverted from landfill as required by the Landfill Directive and therefore includes recycling, composting and recovery targets for different types of waste. The conception and implementation of planning management programs in Azores are established in two plans: *PEGRA* and *Plager.GOV*.

The Strategic Plan for Wastes in Azores (PEGRA) is established from 2007 to 2013 and defines a sustainable policy for waste management regarding the following goals: waste prevention and reduction, the construction of an adequate treatment, valorization and elimination facilities for all the wastes produced in the Azores and also environmental recover in the wake of waste disposal in uncontrolled dumps, namely the closure of all existing dumps sites. PEGRA includes the following waste types: municipal waste, special waste, industrial waste, forest waste, medical waste and agriculture waste.

PEGRA establishes the construction of adequate wastes management infrastructures that are based on known constraints of Azorean Archipelago. In Table 1.1 is presented waste management infrastructures for each island and the related operations, according to PEGRA.

Table 1.1 – Wastes management infrastructures and related operations for each island, according to waste policy.

<b>Island</b>	<b>Infrastructure</b>	<b>Waste operation</b>
<b>Graciosa</b>	Drop-off center	Temporary Storage
	Organic valorization unit	Composting
<b>Flores</b>	Drop-off center and transfer station	Temporary Storage, compaction and transfer
	Organic valorization unit	Composting
<b>Pico</b>	Drop-off and sorting center	Temporary Storage and sorting
	Organic valorization unit	Composting
	Landfill	Elimination
<b>São Jorge</b>	Drop-off center	Temporary Storage
	Organic valorization unit	Composting
<b>Corvo</b>	Drop-off center	Temporary Storage

<b>Santa Maria</b>	Drop-off center	Temporary Storage
	Organic valorization unit	Composting
	Landfill	Elimination
<b>Terceira</b>	Drop-off center	Temporary Storage
	Organic and energetic valorization center	Biometanization
	Mecanic treatment center	Multimaterial valorization
<b>Faial</b>	Landfill	Elimination
	Drop-off center and sorting center	Temporary Storage and sorting
	Organic valorization unit	Composting
<b>São Miguel</b>	Landfill	Elimination
	Drop-off center	Temporary Storage
	Organic valorization unit	Composting
	Mecanic treatment center	Multiaterial valorization
	Landfill	Elimination

*Plager.Gov* is a plan that defines general rules for waste management in regional departments of the Government. The aim of this plan is to encourage the waste prevention and source reduction, recycling, composting and elimination. With the *Plager.GOV* all governmental departments have an operational plan that set of practical rules according to the reality of the government departments, such as waste management operations by waste types, waste quantities registration, responsibilities, and trainees and education in order to implement successfully the operational plans. *Plager.Gov* was approved by Resolution n° 131/2006, 6 of October.

*Plager.GOV* was complemented by a best practices guide that defines best practices applied to waste management in all Azorean Governmental departments in order to improve their environmental performance. This guide was approved by Resolution n° 59/2007, 14 of June and established waste management rules applied to offices, gardens, kitchens, bars and order services. It is also given information about waste transport and waste stream integrated systems. In order to manage Governmental departments according to sustainable development and environmental preservation principles it is also given information about green public procurement and environmental certification.

### **Waste management**

By the moment there are also several waste facilities types for correct management, properly licensed by the Environmental Azorean Department, in almost islands, and the separated collection waste is a reality. This is a great effort from private initiative and in some cases with specifically financial support from EU.

### **Licenses of waste operations in Azores**

In the Azores, the private companies have a business opportunity in the waste sector. They are responsible for the receipt of various waste streams and export to the Portuguese mainland. Figure 1.1 shows the number of licenses issued by the Environmental Azorean Department (*Direcção Regional do Ambiente (DRA)*) about 30 licenses between 2006 and 2008.

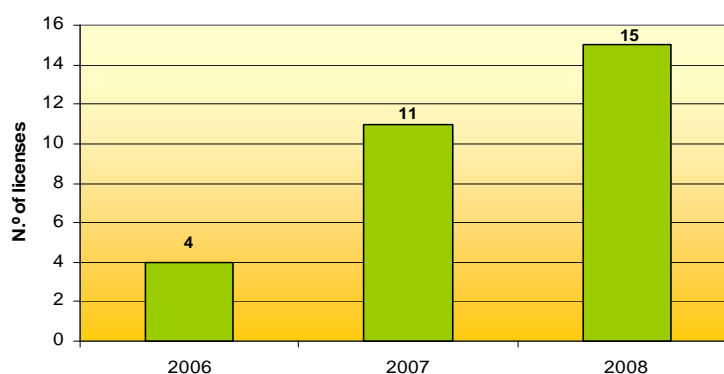


Figure 1.1 - Number of licenses issued by the *DRA* between 2006 and 2008.

Mostly, the licenses are issued to operations for temporary storage of waste (R13 and D15), recovery and disposal operations. Figure 1.2 represents the number of waste operations licenses classified according to European Waste List.

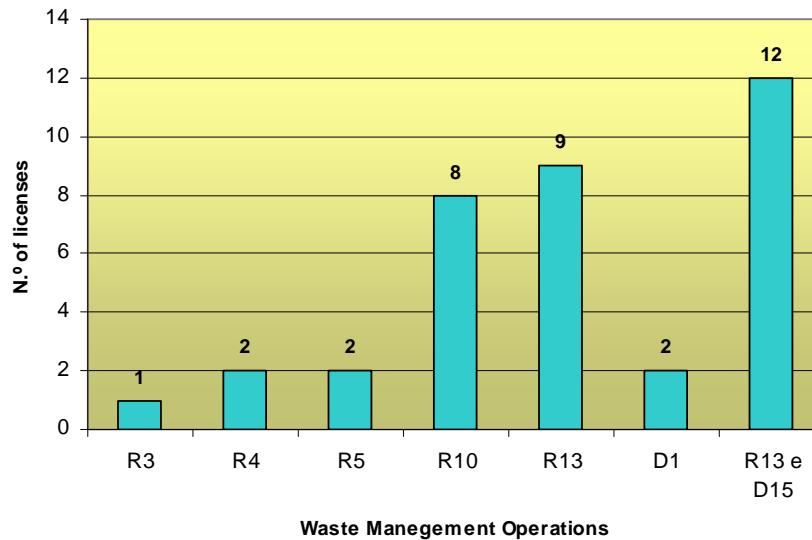


Figure 1.2 - Number of licenses issued by DRA, from 2006 to 2008.

Legend:

- R3 - Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)
- R4 - Recycling/reclamation of metals and metal compounds
- R5 - Recycling/reclamation of other inorganic materials
- R10 - Land treatment resulting in benefit to agriculture or ecological improvement
- R13 - Storage of wastes pending any of the operations numbered R 1 to R 12 (excluding temporary storage, pending collection, on the site where it is produced)
- D1 - Deposit into or on to land (e.g. landfill, etc.)
- D15 - Storage pending any of the operations numbered D 1 to D 14 (excluding temporary storage, pending collection, on the site where it is produced)

In Azorean Islands 69% of waste generated are subject to temporary storage, and then sent for recovery or proper disposal in the mainland, 13% are removed (the landfill) and 18% are subject to recovery in the region. Figure 1.3 presents the percentage of the licensing process, completed and underway in the DRA, for operation of waste management.

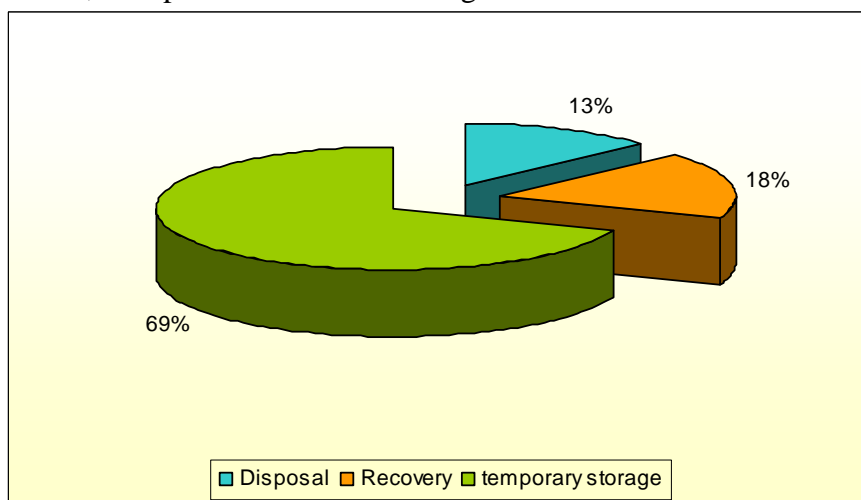


Figure 1.3- Percentage of the licensing process, completed and underway in the DRA, for operation of waste management (disposal, recovery and temporary storage).

## Selective Waste Collection and Exportation

The circuit of selective collection of packaging waste from collection to appropriate destination is implemented only in some islands of the Archipelago, such as *São Miguel*, *Terceira*, *Faial* and *Pico*. In the island of *Pico* it is only carried out paper/cardboard and glass collection. Recently in Santa Maria were available ecopoints, however selectively collected waste is not sent to the Green Dot System, or for recovery. In *Graciosa* is only done glass collection, however this waste is not recovered. In the islands of *Corvo*, *Flores* and *São Jorge* there is no selective collection, the waste is landfilled. The collected recyclable waste (packaging waste) is mostly referred for recovery, including recycling, to waste companies belonging to the Green Dot System.

The maritime transport of packaging waste from the Azores to recycler in Portuguese mainland is supported by the Green Dot company. The municipal waste managers who deliver sorted materials to recycling receive a financial return according to the weight of waste collected and delivered to Green Dot Company.

In the year 2008 were exported an estimated total of 9,078.5 tonnes of waste. Packaging waste exportation represents a value of 7,995.9 tonnes that promote waste separation by Azorean citizens and waste collection by municipal waste managers. In Table 1.2 is presented the waste quantities exported to Portuguese mainland in 2008.

Table 1.2 – Waste quantities exported to Portuguese mainland in 2008.

Types of Waste	Entities	Data export of waste in 2008 (tonnes)									Total exports
		Santa Maria	São Miguel	Terceira	Graciosa	São Jorge	Pico	Faial	Flores	Corvo	
Used Tires	Valorpneu <sup>1</sup>										369
Packaging waste	SPV <sup>2</sup>	-	4.066,8	3.240,3	-	-	277,1	411,4	-	-	7.995,9
Paper Cardboard		-	2.166,2	1.292,2	-	-	210,8	305,4	-	-	3.974,6
Glass		-	1.262	1652,6	-	-	66,3	90	-	-	3.070,9
Plastics		-	229,8	170,5	-	-	0	16,1	-	-	416,4
Wood		-	383,3	115,6	-	-	0	0	-	-	498,9
Metal		-	25,6	9,5	-	-	0	0	-	-	35,1
Waste oil	Sogilub <sup>1</sup>										215
WEEE	Amb3E <sup>3</sup>										498,6

Sources: 1) Waste company data from 1<sup>o</sup> trimester, 2) Data from Green Dot System from 2008 and 3) Data from Amb3e

## Waste solutions in Azores

According to PEGRA, in the smaller Azorean islands where the municipalities were having bigger difficulties in the construction of the adequate infrastructures, the Regional Government has assumed the responsibility to build waste facilities. For example, in *Graciosa* and *Flores* islands there was an open public competition, with a base price of 8,5 million euros and a term of execution 365 days. These waste facilities will include several unities for the storing of the different separated wastes, including hazardous wastes, a transfer place to move the waste to another island or to the mainland and also a composting unity for organic valorization and, finally, other infrastructures associated.

Projects of waste facilities to *Pico*, *Santa Maria*, *São Jorge* e *Corvo* are also being developed by Regional Government. These waste facilities are similar to *Graciosa* and *Flores* projects. In *Pico* it is also included sorting plant.

## Waste regulation

Waste policy in Azores also includes regulatory instruments like a tax for the disposal penalization and the *Ecocerv*, a penalization tax for the non-reuse beer bottles and cans. Another regulatory initiative was the creation of an entity responsible for the definition of quality service criteria and

monitoring goals and waste management systems. To fund the activity of this entity the private and municipal waste management entities and companies pay a special tax.

Waste management taxes have the goal of promoting integrated waste management and to encourage the application the waste hierarchy. These taxes are annual and they are taxed according to waste quantities managed by waste operators and waste management entities. Waste regulation taxes can be cost covering charges about structural, economic and service quality regulation. *Ecocerv* is a tax that has the purpose to encourage the reusable packaging utilization that is only applied to alcoholic beer packaging.

The regulatory instruments applied to waste sector in Azores such as waste management taxes, waste regulation taxes and *Ecocerv* and its values are established in Table 1.3.

Table 1.3 - Regulatory instruments applied to waste sector in Azores and its values.

Taxes	Subjection	Value
<b>Waste management</b>	Waste operators, waste management entities	€1 per ton of waste incinerated or co-incinerated €1 per ton of municipal waste landfill disposed € 1,5 per ton of non-hazardous industrial waste landfill disposed €1 per ton of waste that are managed in waste integrated systems and are not valorized €0,5 per ton of inert waste landfill disposed To hazardous waste are applied the above taxes plus €0,5.
<b>Waste regulation</b>	Operator and entities of waste management	€0,02 per year and per inhabitant that lives in the license area €0,15 per year and ton of managed waste
<b>Ecocerv</b>	Economic operator that have to pay alcohol and alcoholic drink tax ( <i>IABA – imposto sobre o álcool e bebidas alcoólicas</i> )	€0,10 per individual packaging with capacity equal or less than 0,25 l €0,10 per individual packaging with capacity more than 0,25 l

All these taxes return to Environment Regional Fund of Azores (*Fundo Regional para o Ambiente dos Açores*). This Fund has the purpose of contributing to achieve regional goals related to environment, in general, and specifically to waste management. Projects definition, cleaning up old sites of waste disposal, prevention of environmental damage and exportation of passive waste are subjects that can be promoted trough the Fund. Actually, there are three projects promoted by this Fund, developed with external regional entities participation such as universities and laboratories. The projects are presented in Table 1.4.

Table 1.4 - Projects promoted Regional Government through Environment Regional Fund.

Project	Objective	Partnerships
<b>Waste disposal in landfill</b>	Guide to management of landfill facilities in Azores	University of Azores
<b>Composting</b>	Composting technical brief and Using compost technical brief	University of Azores
<b>Construction and demolition waste</b>	Guide to construction and demolition waste management in Azores Development research project about reuse of on-site waste in construction	Regional Laboratory of Civil Engineering ( <i>LREC – Laboratório Regional de Engenharia Civil</i> )
<b>Prevention of hazardous waste in agriculture</b>	Prevention of hazardous waste in agriculture training course to agricultures and general population. This course has the objective to encourage to reduction of pesticides, being promoted the use of vegetal extracts which minimizes pesticides packaging waste	Associations of agricultures from Pico and Faial

Regulation of waste management in Azores is developing in the last year. Entity for the Regulation of Water and Waste Services, callded as ERSARA (*Entidade Reguladora dos Serviços de Águas e*

*Resíduos*). The activities of public water supply, waste water treatment and waste management are public services essential to general well-being, public health and the collective security of communities and businesses and environmental protection. These services should be governed by the principles of universal access, service continuity and quality, and price efficiency and equity.

The main goal of regulation is to protect the interests of users by fostering quality in the services provided by operators and ensuring fair charges. This must be done to safeguard the economic viability and legitimate interests of the operators so as to ensure the medium and long term sustainability of the service and contributing to environmental sustainability.

### **Waste inspection**

In the environmental sector, the execution of activities attributed to the Environment Department includes its own responsibilities regarding planning, management and licensing of waste and environmental promotion and training. For the inspection actions it was created in 2008 a Regional Inspectorate for the Environment (*IRA – Inspeção Regional do Ambiente*), a specialized service in the control and verification of legal requirements.

In the Azores there are also police forces working in environmental protection and inspection such as Environmental protection service from National Guard (*SEPNA - Serviço de Protecção da Natureza e do Ambiente da Guarda Nacional Republicana*) and Public Security Police (*PSP – Polícia de Segurança Pública*).

### **Environmental education and trainee**

The Environmental Department promotes in all islands training courses and environmental education on waste prevention and management, for general and specific groups like municipal technicians, inspection entities, schools, services of regional administration and to enterprises that produce and manage waste.

Some example of the training actions are: international workshop about waste management in islands, packaging and waste of packaging with a partnership *Sociedade Ponto Verde*, waste oil, used tires, waste electrical and electronic equipment with *Amb3e, Eco-Management and Audit Scheme (EMAS)* and Agenda 21 with de Portuguese Environmental Agency (*APA*). The main intend of these actions, in which more than 1200 people already involved, was to increase the knowledge and competences of the participants in waste prevention and correct management while agents of environmental promotion in the Azores.

### **Projects to the future**

In a context of sustainable development, waste prevention and management in Azores is a continuous challenge, so we want to persist in implementing important actions like design prevention and mitigation strategies, implement a regional waste electronic information system (*SRIR*), regional waste transport rules, financial support rates for waste maritime transport between islands and to the mainland and regional waste licensing rules, with the cooperation of all public and private companies and entities and with the Azorean citizens as well.

Under the measure A3.P1.M1 of PEGRA, the Environmental Azorean Department is developing the conception, implementation and awareness of a Regional Information System on Waste (*Sistema Regional de Informação sobre Resíduos - SRIR*). This innovation aims to aggregate all the information on the manufacture, import, export and waste management in the Azores. The requirements of registration of waste are following users: producers of waste, installations covered by integrated prevention and control of pollution (IPPC), waste management companies, entities responsible for waste management systems (urban and waste stream) and importers of waste.



Waste transport and waste operations licensing are now being regulated in the Azores, according to specifications of the Archipelago. About waste transportation are being established rules to control waste destination, the quantities of waste that are transported and also to define conditions of waste transportation in order to avoid potential risks to human health and to environment.

Azorean Government is working to regulate licensing activities in the waste sector. A waste license is a single integrated license dealing with emissions to all environmental media and the environmental management of the facility. Waste operations must satisfy the legal requirements in order to the activity will not cause environmental pollution when carried on in accordance with the license conditions.

### **Conclusion**

To reach a sustainable development in Ultraperipheric Region is a real challenge so we are taking positive steps towards the protection of environment and human health by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use.

The positive steps include the elaboration of regional legislation, the conception and implementation of planning management programs, the conception of integrated waste facilities, the execution of regulatory instruments and the creation of the government dedicated services. It is also important the environmental promotion and training to increase the knowledge and competences of the participants in waste prevention and correct management while agents of environmental promotion in the Azores.

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