

# Contribution to the Management of Legal Procedures of RESITEJO

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## ABSTRACT

Portugal has a dense volume of Environmental legal framework in the most different aspects. In terms of waste, the legislative regimes transcend the barriers of regulation of treatments for recovery or removal of the several types of waste. Waste management policy covers the various aspects of the environment, air, water and soil, and human health as well.

This study presents a careful analysis of the environmental legal framework with an Urban Waste Management System (UWMS) is linked. The licensing process for municipal waste management operations, as well as the other associated regimes, were analysed. Also, work was done to analyse the environmental management exercise of a waste management entity, where the various monitoring plans were studied.

From the work developed, documents and tools were created allowing an efficient management of daily tasks and the evaluation of the costs associated with the environmental management practices established by law. In addition, documentation to monitor licensing processes was developed, whose time scale is adaptable to the user. This study also concludes that Environmental legal framework, specifically applied to waste management entities, is complex and sometimes dubious and heterogeneous, disturbing the process of interpretation and performance of the normal environmental management activity of a UWMS.

## Keywords:

Environmental Licensing; Environmental Legal Framework; Landfill; Urban Waste; Urban Waste Management Systems.

## Abbreviations

APA – Portuguese Environmental Agency  
ARH - Hydrographic Region Authority  
BMT – Biological and Mechanical Treatment  
BMTU – Biological and Mechanical Treatment Unit  
CCDR - Regional Coordination and Development Commissions  
E-GAR - Electronic Waste Management Guides  
EIA - Environmental Impact Assessment  
EP - Environmental Permitting  
INERPA - National Inventory of Anthropogenic Emissions by Sources and Removal by Sinks of Atmospheric Pollutants  
LER - European Waste List  
LUA – Single Site Permit  
PCIP - Integrated Pollution Prevention and Control  
RAA - Annual Environmental Report  
RGGR - General Waste Management Regulation  
SGRU - Urban Waste Management System  
SILiAmb - Integrated Environmental Licensing System  
TURH – Water Use Title  
USW – Urban Solid Waste

## 1 INTRODUCTION

In Portugal there is a wide Environmental legal framework and in particular, in the area of waste. A proper and adequate waste management legal framework contributes actively to the preservation of natural resources, both in terms of prevention and in terms of recycling and recovery. This work has as main objective to study the entire legal framework, both the various permitting required and the daily environmental management, that an Urban Waste Management System (SGRU), such as RESITEJO, is legally obliged to comply with. It is also the objective of this work to return a manual that allows any citizen to know the general legal framework of an SGRU with a sanitary landfill and also to provide daily assistance and management tools to the environmental management sector of RESITEJO.

## 1.1 METHODOLOGY

For the present work was carried out a careful analysis on an environmental legal framework that a Portuguese SGRU is bound to comply with. In parallel, it was necessary to investigate the main environmental legal frameworks in the area of waste, such as the General Waste Management Regulation (RGGR). After this phase, publicly available documents of RESITEJO were analysed. Among the documents analysed, we highlight the Environmental Permitting (EP), which corresponds to the permit for waste management and landfill waste disposal operations, and the Annual Environmental Report (RAA), where a large part of the analysed points are communicated and monitored during a given calendar year.

For the development of tools to support and control the environmental management tasks and permitting processes, the SMARTSHEET platform was used, which consists of a work management tool that allows not only scheduling and controlling scheduling, but also evaluating ideas and projects. In this platform, it was possible not only to do temporal maps that combine tasks with and without precedence, but also to construct maps that can receive inputs from internal and external costs and to give a global view to the user, who can use this tool not only for their own organization, but also to demonstrate to the company's management how workload is distributed and where the points of greatest financial and labor investment are in the environmental management sector. In this platform it is possible to attach several supporting documents and assign themselves responsible for each task, it is also possible to program reminders for certain emails and indicate the degree of completion of each task, either through signage, percent completion or by any other scale defined by the user. However, in the exercises developed it was not considered national and municipal holidays.

## 2 FRAMEWORK

### 2.1 RESITEJO

RESITEJO, Waste Management and Treatment Association of the Middle Tagus, is a waste operator classified with CAE<sub>REV.3n</sub>.º38212, regarding activities of treatment and disposal of

other non-hazardous waste. RESITEJO main objective is the management and treatment of waste produced by the municipalities of Alcanena, Chamusca, Constância, Entroncamento, Ferreira do Zêzere, Golegã, Santarém, Tomar, Torres Novas and Vila Nova da Barquinha, making a total of ten municipalities and a total area of influence of 2 466km<sup>2</sup>. Every year, it is responsible for the collection and appropriate treatment of the approximately 100 000 tonnes of urban solid waste (USW) produced by the 209 587 inhabitants (INE, 2011) of its area of activity. RESITEJO has its headquarters in the Eco Park of Relvão, in Carregueira, where the landfill, the sorting station, the ecocenter and the Biological and Mechanical Treatment Unit (BMTU) are located. The remaining facilities, such as the transfer stations, are distributed in the various municipalities of the area of activity of the RESITEJO.

#### 2.1.1 Characterization of Functional Units

In RESITEJO there are seven stations / transfer centres and eight *ecocentros*, which are places destined to the discharge of residues from the undifferentiated collection, to be later prepared to be transported to the landfill, located in the Eco-Park of Relvão, along with the station and the BMTU. The sorting station consists of six zones, the waste reception area, the sorting line, the baling line, the bale storage area, the sorting area for batteries and accumulators and the scrap yard. This division is aimed at promoting the efficiency and functionality of waste separation and categorization processes. The BMTU also installed in the Eco-Park is the place where the biological and mechanical treatment (BMT) is carried out, which consists in the mechanical separation of the undifferentiated residues in organic matter, recyclable and rejected materials; the organic matter then goes on to biological treatment. The purpose of this process is that the separation will allow recoverable materials with a minimum level of contamination. The RESITEJO landfill was inaugurated in May 1999 and has two cells, denominated 1 and 2. In June 2014 the partial sealing of the first cell of the landfill, cell 1, began, and in the same year the residues became deposited in the new cell, cell 2. The landfill runs 16 hours daily, from Monday to Saturday, except for holidays that coincide with Tuesdays, Wednesdays, Thursdays and Fridays. The landfill is added to an operational procedure with general operating rules to be complied by officials and users.

## 2.1.2 RESITEJO waste

In RESITEJO the most varied types of waste are received, which are identified by using a European Waste List (LER) code. There are currently twenty chapters of LER codes, numbered from 01 to 20. The operations are divided into waste disposal operations and waste recovery operations, whose codes start with the letter D and R, respectively. The operating code must always be included in the Electronic Waste Management Guides (e-GAR) and in the various forms that can be found in the Integrated Environmental Licensing System (SILiAmb). At the present time, RESITEJO performs operations D1 (landfill, in-depth or surface, for sanitary landfills), R12 and R13, which correspond to a cluster of operations of R. Operation D1 may only process wastes regarding the LER code 20 and LER code 19 20, which correspond to municipal waste and wastes from mechanical waste treatment, referred to as waste from UTBM.

In addition to undifferentiated waste, RESITEJO also has responsibility for waste resulting from the selective collection and internal flows. These wastes are referred to as specific waste streams and are regulated by their own regimes, which explain their typology and provide legal instruments for proper implementation and management. Waste oils, construction and demolition waste, packaging and packaging waste and electrical and electronic waste are examples of these specific waste streams, which, due to the remarkable growth in both quantitative and qualitative terms, have been given particular attention to this theme, since it has a particular complexity and importance.

## 3 LEGAL FRAMEWORK AND PERMITTING

RESITEJO, as a SGRU that carries out the activity of depositing non-hazardous waste in landfill, has to comply with a set of laws applicable to the activities that it develops in its installation of the Eco Park of Relvão.

carried out by RESITEJO in the Eco Park of Relvão<sup>8</sup>

Legal Regime	Document Identification
Decreto-Lei n.º 73/2011, 5 de setembro (RGGR)	Battery sorting station.
	Waste sorting station for paper and board, plastic packaging, metal packaging, glass, old furniture and used mattresses.
	Biological and Mechanical Treatment Unit
	CDR Production Units and Biological and Mechanical Treatment
Decreto-Lei n.º 183/2009, 10 de agosto	Landfill - waste disposal operation license
Decreto-Lei n.º 226A/2007, 31 de maio	Capture AC1, AC2, AC3
	EH3
Decreto-Lei n.º 127/2008, 21 de julho	PRTR Form

In addition to the legal regimes in Table 1, there are some complementary regimes applied to RESITEJO activities, namely the Single Site Permit (LUA), the Integrated Pollution Prevention and Control (PCIP) regime and the fluorinated gases regime.

### 3.1 RGGR LAW

Decreto-Lei n.º 178/2006, de 5 de setembro, was drafted with the objective of defining new rules for the licensing of waste management operations. Decreto-Lei n.º 73/2011, de 17 de junho, which amends and republishes Decreto-Lei n.º 178/2006, provides for a simplified permitting regime that allows the issuance of a permitting within a maximum period of 30 days. This Decree-Law is without prejudice to the provisions of other permitting regimes, namely the permitting of landfill and incineration and waste co-incineration activities.

#### 3.1.1 Environmental Permitting Process

The permitting process begins when the applicant submits to the licensor the request for licensing, together with all necessary documents. For the observation and analysis of the licensing process of a waste management and operation activity, a document was developed in SMARTSHEET, which considers the various stages of the licensing

Table 1 - Legal frameworks applicable to the activities

process, as well as the respective waiting times. On the present exercise Environmental Impact Assessment processes (EIA) are not considered to be held simultaneously with the licensing process of the waste management operation.

The lawful regime has some caveats that are difficult to be accurately considered in a time simulator, so the user must make some changes manually, because the considered periods are a time interval and in practice some deadlines may be shorter than the expected maximum time. The opposite may occur, since the licensing entity does not always meet the deadlines, as Decreto-Lei n.º 178/2006, de 5 de setembro, provides. This simulator, besides organizing and planning the management of the various tasks related to the licensing, allows to evaluate the real deadlines, in view of the theoretical deadlines provided by Portuguese law and denounce certain situations that become unsustainable for the management of a SGRU. A number of management support tools are also provided to the user, such as cost analysis, naming task managers, creating reminders for various users, and attaching documents related to certain tasks or any other relevant subject. The licensing of waste management operations depends on the implementation and verification of the compliance of point 2, from Article 31, of Decreto-Lei n.º 178/2006, de 5 de setembro. The final decision encompasses the terms and conditions for the licensed waste management operation.

The licensing process is intended only for some simpler activities of a SGRU, for example, the storage and sorting of waste in a reception center that integrates systems for managing specific waste flows. The analysis and decision take place within 30 days. This process is simple when compared to the normal process, however it is necessary that after the request for licensing, the licensing entity, when verifying the request that is instructed, does not request further clarifications or complementary elements. If this happens, the deadline of 30 days is suspended and the process can be extended. In the simplified process there are no consultations with external entities and the decision regarding the required licensing depends on compliance with the requirements of point 6, from Article 32, of Decreto-Lei n.º 178/2006, de 5 de setembro. After the issuance of the license, within a maximum period of six months, the control inspection must be carried out.

### **3.2 SINGLE SITE PERMIT (LUA)**

It is now possible to start the process of licensing the various environmental actions in a single application from the Single Environmental Licensing (LUA). The LUA is governed by Decreto-Lei n.º 75/2015, de 11 de maio, rectified by Declaração de Retificação n.º 30/2015, de 18 de junho, and the LUA simulator is housed in SILiAmb. The LUA is made up of a set of intervening entities whose competencies and scope vary according to their position. Licensing and coordinating entities in the environmental field are APA and the Regional Coordination and Development Commissions (CCDR).

### **3.3 INTEGRATED POLLUTION PREVENTION AND CONTROL (PCIP)**

The PCIP regime has a different perspective from the traditional sectoral strategies to combat pollution, recognizing that an integrated approach to pollution control promotes the protection of the environment as a whole. This regime is regulated by Decreto-Lei n.º 173/2008, de 26 de Agosto, revoked by Decreto-Lei n.º 127/2013, de 30 de agosto, establishing the industrial emissions regime (REI), which in turn, it is applicable to PCIP and at the same time stipulates rules aimed at preventing and reducing emissions to air, water and soil, as well as the production of waste, in order to achieve a high level of protection of the environment as a whole. The facilities that must develop PCIP activities have their functioning conditioned by obtaining an LA. From the continuity of the work of the LUA module, the PCIP form for the application for environmental licensing was dematerialized and integrated the electronic form of mandatory completion for applications submitted via the LUA module.

### **3.4 LANDFILL DISPOSAL LEGISLATION**

The landfill of waste is regulated by Decreto-Lei n.º 183/2009, de 10 de agosto, transposing into legal order the Diretiva n.º1999/31/CE, do Conselho, de 26 de abril. This Law-Decree aims to avoid and reduce negative effects on the environment. The general requirements to be taken into account in the design, construction, operation, closure and post-closure of landfills, including the specific technical characteristics for each class of landfill, are also published on the Decreto-Lei n.º 183/2009, de 10 de Agosto.

### 3.4.1 Permitting Process

For the analysis of the landfill licensing process SMARTSHEET was once again used, where all steps of the process were included, including the EL renewal process and the change of the financial guarantee. The steps are similar to those in the RGGR law licensing process, however they are more specific. There is also redundancy in the accuracy of the time periods of the various stages, which can mean significant deviations from the expected theoretical deadlines.

For the landfilling operation, a financial guarantee is essential to ensure that the conditions laid down in the license, including those relating to the closure process and the post-closure control and maintenance, are fully complied with. This insurance takes effect from the start of the operation and covers damage arising from sudden and accidental pollution caused by the landfill and its remediation costs.

### 3.5 FLUORINATED GASES

Fluorinated greenhouse gases are regulated by Regulation (EU) No 517/2014 of 16 April and RESITEJO is considered to be an equipment operator for these gases, therefore it should be governed by this legislation. With regard to national legislation, this scope is regulated by Decreto-Lei n.º 56/2011, de 21 de abril and APA is the competent authority under the terms and for the purposes of the regulation. This Law-Decree provides information on the obligations of operators holding fixed refrigeration, air conditioning and heat pump equipment, such as RESITEJO.

### 3.6 WATER USE TITLE (TURH)

The use of water resources, whether public or private, representing the potential for significant impacts on water status and the rational and balanced management of resources, lacks a title that allows such use, known as the Water Use Title (TURH), issued under the terms and conditions set forth in Decreto-Lei n.º 226-A/2007, de 31 de maio, which corresponds to the Water Resources Utilization Regime, and in the Water Law, Lei n.º 58/2005, de 29 de dezembro. The entity for the allocation of the TURH is the territorially competent Water Resources Authority. The allocation of titles

for the use of water resources in the public and private domain are subject to the submission of the application by the applicant and the implementation of the entire licensing process, which includes verification, analysis and consultation phases of applications for use of water resources. Currently, RESITEJO holds three titles for the abstraction of groundwater and one for the discharge of wastewater and rainwater. Titles for the use of water resources shall lapse in the terms of the fixed periods, and their renewal shall be requested within six months before the respective term.

## 4 SILIAMB

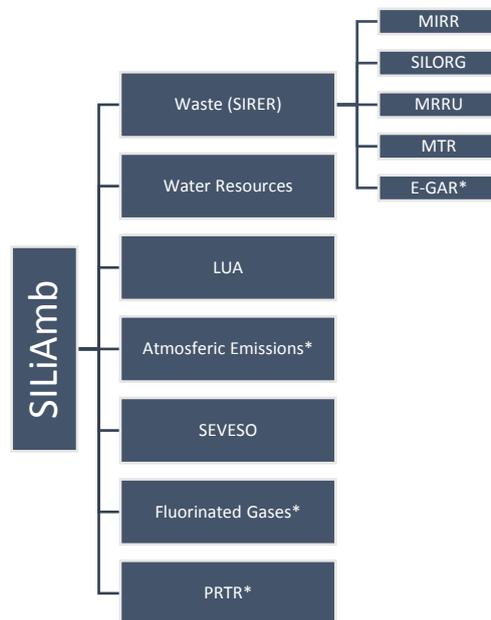


Figure 1 - Schematic of the SILiAmb and its modules<sup>20</sup>. \* modules in development

SILiAmb is an online platform that brings together all reporting and licensing modules from different areas, such as the Integrated Electronic Waste Registration System (SIRER), the Single Environmental Licensing (LUA) and Water Resources, among others. The platform allows citizens to interact with the APA in an administratively simplified and computerized way. For this study, SILiAmb was analyzed as a licensing and reporting platform for the RESITEJO.

### 4.1 SIRER

#### 4.1.1 MIRR

MIRR module is a module for reporting data and

monitoring of incoming and outgoing waste and consists of six forms, which can be completed in accordance with the MIRR framework of each establishment<sup>15</sup>. The report is annual in the first three months of the year. RESITEJO has in its framework previously defined by APA, the filling of three forms, B (waste generator), C1 and C2, relating to waste management operations. Used cooking oils and construction and demolition wastes are examples of non-urban waste that should be reported on form C1; electrical and electronic waste and batteries are examples of wastes that must be reported on Form C2 for processed wastes.

#### 4.1.2 MRUU

The MRRU is the SILiAmb module that is intended only for urban waste management systems and where waste input and output data should be reported in the various units of the RESITEJO. MRRU module is constituted by 7 categories, divided into 25 forms, of which 9 are of annual report, the remaining ones being monthly reports<sup>20</sup>. At present, RESITEJO fills the forms of the categories: system (S), landfill (A), mechanical treatment (TM), triage (T) and in the near future the organic valorization category (VO) will be added, since the treatment has been licensed in the past year of 2016 and APA to date has not yet qualified this field in the MRRU form.

#### 4.1.3 E-GAR

The transport of waste in Portuguese territory, regardless of the chosen environment (road, air, among others), is accompanied by an Electronic Guide to Waste Accompaniment (e-GAR) previously completed before the beginning of transport. RESITEJO as waste operator receives the e-GAR of the waste from its producers and emits when it transports waste to another place, other than the RESITEJO facilities. This is a daily procedure whose quantity is variable. Guides are issued and validated from SILiAmb.

#### 4.2 LUA

The LUA simulator is housed in the SILiAmb platform and in order to test the simulation results, two different scenarios were tested; (1) for a new simulation process, (2) an unchanged license renewal process. On LUA it is also possible to simulate a renewal considering changes, however this scenario was not simulated, given the

subjectivity of the data that would be inserted, which would result in a result without interest of analysis.

From the analysis of the simulation to a new licensing process, one can conclude that the values and schemes returned correspond to reality, since the announced schemes are the ones that RESITEJO is currently required to comply with, as well as the licensing fee amounts, that run the actual values practiced.

Regarding the simulation of renewal without changes, the value returned is about 4,000 euros lower than the first license, which again corresponds to the values currently practiced for LA renewals. The lowest value, related to the integrated licensing fee, only occurs if the schemes are renewed simultaneously. In the event that one or more schemes do not require renewal, only the values of the independent licensing fees for the schemes to be renewed should be added; the amount to be paid will be the total, even if it exceeds the value of the integrated licensing fees.

#### 4.3 POLLUTANT RELEASE AND TRANSFER REGISTER (PRTR)

Data communication is the responsibility of each operator where at least one PRTR activity is performed, as in the case of RESITEJO. The data should be forwarded to the competent authorities of each Member State, which validate, disseminate and send it to the European Commission; being the latter in turn available on the European PRTR website<sup>22</sup>.



Figure 2 – Data flow<sup>22</sup>.

Regarding the national framework, the PRTR is regulated by Decree-Law no. 127/2008, of July 21, modified by Decree-Law no. 6/2011, of January 10. In this diploma, regarding the obligations of operators of PRTR establishments, there is information regarding the communication of the annual values of emissions and transfers of pollutants and wastes.

Annually, as an operator of a PRTR facility, an annual report on the emissions and transfer of pollutants and waste should be drawn up, which should include the amount of hazardous and non-hazardous waste in t / year transferred to the outside

of the facility. For each PRTR pollutant in kg / year, the emission values measured, calculated or estimated for the waste water produced in the RESITEJO installations and sources, either punctual or diffuse, for air, water and soil, facilities. The reporting is annual and mandatory and for the reporting of information regarding emissions and transfers for the year 2016, the APA defined as reporting period the period between May 15 and July 15, 2017.

## 5 DAILY REPORT OBLIGATIONS

RESITEJO while SGRU is obliged to carry out an extensive set of tasks that are repeated daily, monthly or annually, in the various fields of application, namely resource management, atmospheric emissions, wastewater and rainfall emissions, environmental monitoring, topographical changes and the completion of the annual environmental report. Each of these parameters is monitored according to the directives themselves, which may vary between the operating or use licenses and the Regulatory Laws- Decree.

### 5.1 Contribution

In order to help the management of the daily RESITEJO, analysis of inherent costs and observation of the time that is necessary to spend for the several legally obligatory reports, a document was created in SMARTSHEET, which allows to evaluate the scale of investment, external and internal costs associated with of each parameter, as well as analyzing, within a time scale, the period that a given task leads to be accomplish.

The main document, called Gestão do Quotidiano, is supported by other documents, which are related to the SIRER, water resources and as atmospheric emissions, where they are condemned as innumerable reporting tasks for each of the three áreas.

## 6 RESULTS AND DISCUSSION

With the work carried out for the RESITEJO framework, it was possible to conclude that a SGRU has an extensive dimension of infrastructure, both human and procedural, and the focus is easily dissipated to some concrete plan.

For a correct and efficient environmental management it is necessary to know clearly the structure and everything that happens in it.

Regarding the licensing regimes and processes, the studies carried out point to some conclusions. There are now a considerable number of diplomas in force that must be taken into account, which sometimes leads to some dispersion and uncertainty as to the decisions to be taken. As for the licensing processes, with the study and interpretation of the various diplomas for the accomplishment of the auxiliary documents in SMARTSHEET, it is verified that the chaining of the various phases of a licensing process is not easy and is often dubious and easily dragged on the temporal line. When reassessments, requests for new elements and lack of compliance with deadlines by the licensing entity should be considered, the process is dragged on, since not always the processes are tacitly granted in some stages. The delays that occur in the processes can not be supported by the managing entities, who are vulnerable in some situations, in particular by inspection entities, such as IGAMAOT.

Within the SILiAmb the various active modules for a SGRU were studied, and the easy access and interaction with the platform stands out; the manuals and user guides are useful for any doubts, however, some modules are still under development and only after the process is completed will it be safe to comment on any problems or suggestions. If the projections are made, it will be logistically more interesting for the user to find condensed all the reporting modules and that the communication and data crossing between them is possible. On the other hand, the LUA module, which already operates under normal conditions, has revealed some errors that call into question the use of the simulator for both new and renewal licensing processes. It is not practical and may even create some confusion for the user, that it is forced to delete a previous simulation, when you only want to change a response point or simulation category. However, when the simulation takes place without problems, the LUA module is a useful tool to forecast costs associated with licensing processes, as well as their legislative regimes; however, the deadlines indicated may not correspond to the actual deadlines, since the scheduled deadlines are indicated without irregularities and any delays, that is, the minimum terms provided by law. Regarding the other modules, it is not possible to conclude anything about the use and experience as a user, since access to these

modules is restricted to waste management operators and for reasons of confidentiality, they were not accessed.

Finally, with regard to day-to-day planning, it is perceptible that a waste management system is subject to a rigorous and extensive protocol of monitoring and communication to the competent authorities, which consequently requires considerable investment, both human and financial, for the development of environmental management activities. With the study of the various scopes of reporting it is possible to conclude that it might be worth investing in a system that allows collecting and treating all data uniformly and within the same formatting parameters, and perhaps the data Exchange, because many of the parameters are complementary or similar. A good bibliographic and database is also essential, with the updated Decree-Laws and their interpretative notes, which allows a quick and efficient consultation. In summary, for an environmental management sector, it is essential to have an organization, whether documentary, temporal, labor or procedural.

It should also be mentioned that it may be an added value for the environmental management of a SGRU to position itself in the sector and in the market and closely monitor the work that is carried out in the waste sector for the development and innovation of environmental management technologies, as well as to study the constant changes in the most varied regimes, easing and streamlining the process of adaptation to new procedures, whose length is mandatory or not.

## 7 CONCLUSIONS

From the work carried out it is possible to conclude that a SGRU is highly complex and has a structural, economic and financial dimension. The size and multifunctionality of RESITEJO leads to the regulation of a wide range of diplomas not specific to its activity, so that the interpretation of the legislation is complex, which makes it difficult to interpret what needs to be taken into account.

Finally, environmental management, which is repeated annually within the defined periods, is very comprehensive, with numerous tasks and its fulfillment involves entities external to RESITEJO,

which represents financial costs.

From the analysis of the scheduled works in the management platform SMARTSHEET it is verified that the monthly agenda is not repeated, but it is possible, through the same one, to predict the moments of greater intensity of work for reporting and at the same time to prepare, in good time, the necessary elements, namely those involving the acquisition of services to external entities, such as the request for analysis, monitoring and performance reports. The platform as an instrument to support environmental management, will allow to evaluate and increase the performance of employees involved in this activity.

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