

Programa Ambiente, Alterações Climáticas e Economia de Baixo Carbono

‘Programa Ambiente’

Mecanismo Financeiro do Espaço Económico Europeu 2014 – 2021

Final Report

31-03-2024

PROJECT 02_CALL#4I4Efficiency

De acordo com os Artigos 25º, nº 2, alínea j) e 29º, nº4 do ‘Guia para os Candidatos ao Financiamento de Projetos de Ambiente, sobre Alterações Climáticas e Economia de Baixo Carbono’

https://www.eeagrants.gov.pt/media/2993/guia-para-o-financiamento-projetos-eea-grants_programa-ambiente_28112019.pdf

FINAL PROJECT REPORT

Includes activities between January 1, 2024 to March 31, 2024

i. Detailed Description

Summary of the activities carried out; information on the involvement of partners, in particular with regard to donor country partners; information on project participants.

ID	Activity/operation designation		Start Date	End Date	Expected status	Observations
1	Project management	1.1 Project Monitoring and Management	2021-09-01	2024-03-31	Completed	<p>Throughout the reporting period, the team held its regular monthly meetings (01-04-2024, 01-25-2024, 03-01-2024, and 03-28-2024) to ensure continuous project monitoring. Four meetings were held between the partners (Annex 1 - Evidence), attended by SGA members.</p> <p>ZERO and MARLO maintained their regular weekly contacts to evaluate the status of operations.</p> <p>During this period, three events took place, monitored by Project Management (Images in Annex 1 - Operationalization Evidence):</p> <p>(i) Follow-up Meeting of the Living Labs, promoted by SGA, on March 13;</p> <p>(ii) 2nd external local verification of the project on</p>

ID	Activity/operation designation	Start Date	End Date	Expected status	Observations	
					<p>March 19, in Sintra, with a visit to the Estefânia Municipal Market, also attended by SGA members;</p> <p>(iii) On March 25, the formal closing session of the project took place at the Valenças Palace in Sintra.</p> <p>On February 19, 2024, the documentation related to the 8th interim report was sent.</p> <p>By the end of March, the collection and processing of information for the final report had begun.</p>	
		1.2 Financial execution	2021-09-01	2024-03-31	Completed	<p>During this period, on January 22, 2024, documentation related to supplementary financial information for the 3rd payment request was sent, already including the VTMAR partner, and we sent clarifications requested by SGA regarding this 3rd request. Subsequently, additional clarifications regarding the 3rd payment request were sent on March 1, 2024, March 5, 2024, and March 6, 2024.</p> <p>On March 1, 2024, documentation related to the 4th payment request was sent.</p> <p>The organization of documentation for the 5th payment request and the 6th (final) payment request was initiated.</p> <p>The financial execution during the reporting period was 9.92%, with the final accumulated project execution at 94.43%.</p>
2	Living laboratory 1	2.1 Database Processing	2021-09-01	2022-02-28	Completed	- Processed records, postal data validation, and administrative division.
		2.2 Support for methodologies and research	2021-12-01	2022-11-30	Completed	D_2_2_Public Policies and European Best Practices_Final 12 2023; reviewed and finalized: guidelines for future inclusion and scalability of i4efficiency in the National Strategy for Smart Territories (ENTI in deliverable D_3.2). Already submitted with the 8th interim report.
		2.3 Definition of concentration units and their destination	2022-01-01	2022-05-31	Completed	- All actions completed towards the implementation of the pilot
		2.4 Pilot Implementation	2021-09-01	2024-03-31	Completed	<p>- Training on the use of lockers for the vendors of the Estefânia market as an alternative way of delivering their products to customers</p> <p>- Creation of the Unique Shipper Code, a code for each vendor to control access to the locker system for delivering orders to their customers via the</p>

ID	Activity/operation designation	Start Date	End Date	Expected status	Observations	
3	Living laboratory 2				locker. - Periodic meetings between the partners. - Coordination with the internal services of the Municipality of Sintra and the SMAS of Sintra.	
		2.5 Evaluation and Reengineering of Processes and Methodologies	2021-09-01	2024-03-31	Completed	- Monitoring the registration and processing of information related to the Vivo 1 laboratory
		3.1 Database Processing	2021-09-01	2022-02-28	Completed	- Processed records, postal data validation, and administrative division.
		3.2 Support for methodologies and research	2021-12-01	2022-11-30	Completed	D_3_2_National Public Policies and Best Practices_Final 12 2023: reviewed and finalized. Guidelines for future inclusion and scalability of i4efficiency in the National Strategy for Smart Territories (ENTI). Already submitted with the 8th interim report.
		3.3 Definition of concentration units and their destination	2022-01-01	2022-05-31	Completed	- Creation of temporary IUEs (Unique Address Identifiers), 500 temporary unique address identifiers in Living Lab 2, of which 340 were used on average for each event at the Massamá market.
		3.4 Pilot Implementation	2021-09-01	2024-03-31	Completed	- Training on the use of lockers for the vendors of the Massamá market as an alternative way of delivering their products to their customers - Creation of the Unique Shipper Code, a code for each vendor to control access to the locker system for delivering orders to their customers via the locker. - Implementation of the project for large waste producers and temporary producers at the Massamá Weekly Market. Each week, temporary IUEs (Unique Address Identifiers) were created according to the new concept, with a validity period for each event date. Specifically, for each market day, an IUE was established along with the provision of a kit of containers and/or bags for waste separation and tracking. The dynamic separation kit (adjusted during the process) was optimized based on the characteristics of the IUE and the production history obtained through tracking, increasing the database's quantity and quality of information. This knowledge tool is essential for future planning and optimization of logistical activities, in this case, waste management. - Periodic meetings between partners. Coordination with the internal services of the Municipality of Sintra, the Parish Council of

ID	Activity/operation designation	Start Date	End Date	Expected status	Observations	
					Massamá and Monte Abraão, and the SMAS of Sintra. - Recruitment of one more HR dedicated to the activities of Hub 2. (Appendix 3 – HR)	
		3.5 Evaluation and reengineering of processes and methodologies	2021-09-01	2024-03-31	Completed	- Evaluation of the process of creating and processing orders associated with cyclical events for IUEs of the Large Producers type (market)
4	Application Development	4.1 Technical-functional specification	2021-11-01	2024-03-31	Completed	D4.4 Acceptance Test Report – Correction and Evolution (Appendix 2 – Deliverables).
		4.2 Application development and evolutionary maintenance	2021-11-01	2024-03-31	Completed	<p>Within the scope of operation 4.2, regarding application development, the following were carried out:</p> <ul style="list-style-type: none"> • Calculation review • Integration of operational data related to cyclical events • Review of a weekly report with platform indicators presenting data on the IUEs
5	Communication, dissemination and information	5.1 Project Communication Plan	2021-09-01	2024-03-31	Completed	D5.7_Report 7_Final Communication Plan D5.5 - Report 5. Final Communication Report Both in (Appendix 2 – Deliverables) and via link https://drive.google.com/drive/folders/1P2TTmi67wmXeYtPPG3DDpfAla8lhYQzO
		5.2 Information plan to the population	2021-11-01	2024-03-31	Completed	<p>D5.6_ Report 6_Engagement of the Target Audience in the Final Exploration Plan (Appendix 2 –Deliverables) and via link https://drive.google.com/drive/folders/1P2TTmi67wmXeYtPPG3DDpfAla8lhYQzO</p> <p>Project presentation in Sintra in a session for international partners of CMSintra on 03-04-2024 within the Promoter project (Appendix 1 – Evidence)</p>
6	Monitoring	6.1 Measurement and validation of monitoring methodologies	2021-11-01	2024-03-31	Completed	- We continued to reassess the methodology for calculating the CO2 emissions estimate related to the waste component due to the constraints observed (vandalism of containers, users of containers not allocated to the project, and low participation rate by IUE users, and due to the new data from the Massamá Market)
		6.2 Monitoring and evaluation of the results obtained	2021-09-01	2024-03-31	Completed	<p>- Updating the CO2 emissions estimate according to data collected from January to March 2024.</p> <p>- New sampling/characterization of waste at Tratalixo on 03-08-2024</p> <p>- Conclusion of D6.5_4 Final Evaluation Report (Appendix 2 – Deliverables).</p>

Table 1 – Summary of project activities carried out between January and March 2024

Coordination

This interim report, the last of the project, includes the project status from January to March 2024. During this reporting period, 4 meetings between partners took place (01-04-2024, 01-25-2024, 03-01-2024, and 03-28-2024) (Appendix 1 – Evidence), and regular meetings between ZERO and MARLO were maintained for monitoring and evaluating operations. All activity already considered the project's conclusion, the response to the request for a 2nd Local Verification (Appendix 1 – Evidence), which took place on March 19, and the preparation for the project's final closing session, which took place on March 25 at the Palácio Valenças, by invitation of partner CM Sintra (Appendix 1 – Evidence). Several parallel actions also took place, such as the presentation within the PROMOTER project, funded by INTERREG EUROPE, where during a technical visit on March 4, the Municipality of Sintra presented to its partners what it considers to be its best practices in the field of energy transition and sustainable mobility, including the Living Lab I4Efficiency. Additionally, a meeting was held on March 13 by the SGA, bringing together the various projects of the EEA Grants - Notice #4 for status updates and necessary clarifications for the closure of the projects. Both events allowed the project management to briefly present the status of environmental indicators, physical and financial execution, as well as the potential of the I4Efficiency project as an example of an activity that promotes decarbonization and good practices to be replicated in other municipalities. It should also be noted that the biggest challenge during this reporting period was consolidating all the information, including collecting the 9 deliverables scheduled for March 31, and all financial information for the project's conclusion.

Missing Report from Interim Report No. 8

The D5.4 - Report 4: Communication and Disclosure Plan Update was inadvertently omitted from the submission of Interim Report No. 8. This report is now attached to this document. Please find it included in (Appendix 2 – Deliverables).

ii. Achieved results

Evaluation of the Project Results (at each reporting moment, including possible deviations from the schedule) in terms of activities, result indicators, communication plan.

ID	Designação Atividade/operação		Produtos (esperados/ entregues)	Indicador (de atividade)	Meta	Resultado obtido	Taxa de execução material (%)	Fonte Verificação (esperados/ entregues)
1	Project management	1.1 Project monitoring and management	D1.1/D1.2/D1.3/D1.4	Number of jobs created (disaggregated by gender and age)	1	1	100%	Formalized Employment Contract José Paulo Martins (M; 62) September 1, 2021
1.2 Financial execution								
2	Living laboratory 1	2.1 Database management	D2.1	Estimated annual reduction in CO2 emissions (in tons)	251	203,42	81,04%	Defined in the monitoring plan. Calculations performed based on the data available on the platform <i>D6.5 – Final Evaluation Report (Appendix 2 - Deliverables)</i>
		2.2 Support for methodologies and research	D2.2	Number of jobs created (disaggregated by gender and age)	2	2	100%	Formalized Employment Contract Maria Clara Guedes (F; 65) Administrative Assistant and David Assunção (M; 44) Technical Logistics Assistant
		2.3 Definition of concentration units and their allocation	D2.3	Number of people benefiting from the implementation of mitigation/decarbonization measures	2837	4785	169%	D6.5 – Final Evaluation Report (Appendix 2 - Deliverables)
		2.4 Implementation of the Pilot	n/a	Number of innovative mitigation/decarbonization measures supported	4	4	100%	(1) HUB with distribution by electric fleet; (2) Smart lockers and smart locks; (3) Concentration of utilities services; (4) Biodegradable bags with RFID technology.
		2.5 Evaluation and reengineering of processes and methodologies	D2.4	Number of municipalities that implemented mitigation measures	1	1	1	Municipality where the pilot is implemented

ID	Designação Atividade/operação	Produtos (esperados/entregues)	Indicador (de atividade)	Meta	Resultado obtido	Taxa de execução material (%)	Fonte Verificação (esperados/entregues)	
3	Living laboratory 2	3.1 Database management	D3.1	Estimated annual reduction in CO2 emissions (in tons)	1826	1591,96	87,18%	Defined in the monitoring plan. Calculations performed based on the data available on the platform <i>D6.5 – Final Evaluation Report (Appendix 2 - Deliverables)</i>
		3.2 Support for methodologies and research	D3.2	Number of jobs created (disaggregated by gender and age)	4	4	100%	<i>Formalized Employment Contracts:</i> <i>João Cruz (M; 53)</i> <i>Role: Support for Hubs, Distribution, and Technical Assistance</i> <i>Emmanuel Lira (M; 38)</i> <i>Role: Postal Distributor</i> <i>Pedro Alfiante (M; 52)</i> <i>Role: Maintenance of containers and distribution</i> <i>Lourenço Flores (M; 23)</i> <i>Role: Support for Hubs, Distribution, and Technical Assistance</i> <i>New contracts and CVs of João Cruz and Lourenço Flores (replacing Taynara Bebiano) are in Appendix 3 – Human Resources.</i>
		3.3 Definition of concentration units and their allocation	D3.3	Number of people benefiting from the implementation of mitigation/decarbonization measures	21885	20435	93,37%	D6.5 – Final Evaluation Report (Appendix 2 - Deliverables)
		3.4 Implementation of the Pilot	n/a	Number of innovative mitigation/decarbonization measures supported	4	4	100%	(1) HUB with distribution by electric fleet; (2) Smart lockers and smart locks; (3) Concentration of utilities services; (4) Biodegradable bags with RFID technology.
		3.5 Evaluation and reengineering of processes and methodologies	D3.4	Number of municipalities that implemented mitigation	1	1	1	Municipality where the pilot is implemented

ID	Designação Atividade/operação	Produtos (esperados/entregues)	Indicador (de atividade)	Meta	Resultado obtido	Taxa de execução material (%)	Fonte Verificação (esperados/entregues)	
			measures					
4	Application development	4.1 Technical-functional specification	D4.1/D4.3	Number of jobs created (disaggregated by gender and age)	3	3	100%	Formalized Employment Contracts Tiago Frade (M; 38) Start Date: January 13, 2022 Maria Pinto (F; 21) Start Date: October 17, 2022 André Pinheiro (M; 27) Start Date: October 17, 2022
		4.2 Application development and evolutionary maintenance	D4.2/D4.4	Number of innovative mitigation/decarbonization measures supported	1	1	100%	Implementation of the pilot: Data accessible on the platform dashboard
5	Communication, dissemination, and information	5.1 Project Communication Plan	D5.1/D5.2/D5.4/D5.5/D5.7	Number of jobs created (disaggregated by gender and age)	1	1	100%	Formalized Employment Contract Ricardo Cerqueira replaces Pedro Cruz (M; 23) Start Date: January 15, 2024
		5.2 Public Information Plan	D5.3/ D5.6	Effectiveness of the project's communication and dissemination campaigns	200 000	388 233 + 480000/mês via <i>outdoor</i>	194% through various means over 100% via <i>outdoors</i> Over 100% via <i>outdoors</i>	D5.5 – Final Communication Report (Appendix 1 – Evidence) and link) https://drive.google.com/drive/folders/1gF-JKNkUxE0JM4rk0fq1gecLiMfA3kQq
6	Monitoring	6.1 Calibration and validation of monitoring methodologies	D6.1	n/a	n/a	n/a	n/a	D6.5 – Final Evaluation Report (Appendix 2 - Deliverables)
		6.2 Monitoring and evaluation of the results obtained	D6.2/D6.3/D6.4/D6.5					

Table 2 – Project Results Evaluation

Evaluation of Activities

At the end of the project, the overall physical execution rate is estimated at 97%. Despite finding an alternative method for reading bags at the Massamá market using handheld RFID readers by DeltaPost employees, the installation of "cages" for bag deposition with a portal placed at the entrance of this space, as well as the metal structures for bag support, remained unrealized.

Activity 1 – Management

Regarding management, a total of 59 meetings were held among partners, in addition to more informal meetings between ZERO and Marlo to monitor ongoing operations.

The financial execution rate was 94.43%. See observations/comments in iii. Description of costs and assessment of financial impact.

Activity 2 - Living Lab 1

The planned actions for postal distribution, utilities, and waste management were implemented. Despite achieving a CO2 reduction rate of 81.04%, which fell short of the target, the process and innovative measures proved to be positive. The expected values were not achieved for various reasons identified throughout the interim reports, particularly in the waste management area. This was due to delays in implementation, difficulties in ensuring correct user adoption of the system, and vandalism of containers.

Regarding utilities – Technical Assistance Services for water, energy, and telecommunications networks, the efficiency gains in services were very limited and almost negligible. This was primarily because the entities responsible for water, energy, and telecommunications networks have procedures in place that hinder the application of the service efficiency optimization algorithm. These procedures do not allow for shared service slots or joint issuance of service orders by zones, type of intervention, and preferred schedules, aspects that the Unique Address Identifiers (IUE) were designed to enhance efficiency in these activities. The most significant efficiency gains were observed in the postal area (circuits with electric vehicles, proximity hubs, and lockers).

For more detailed results, refer to deliverables D2.4 - Implementation Results in Living Lab 1 and D6.5_Final Evaluation Report (Appendix 2 – Deliverables).

Activity 3 – Living Lab 2

The planned actions related to postal distribution, utilities, and waste management were implemented. Although the CO₂ reduction results (87.18%) fell short of the target, the process and innovative measures were still positive. The expected values were not achieved for several reasons. In the waste management area, as noted in interim reports, difficulties arose because we were unable to get the Municipality and Parish Council to install the bag deposition cages with RFID reading portals, which delayed the process of recording waste collection at the Massamá market. Nonetheless, the collected data demonstrates the significant potential for organic waste collection and material recycling from this weekly event.

Regarding utilities – Technical Assistance Services for water, energy, and telecommunications networks, similar to Living Lab 1, the efficiency gains in services were very limited and almost negligible. The responsible entities for water, energy, and telecommunications networks have procedures in place that prevent the application of the efficiency optimization algorithm. They do not share service slots or issue joint service orders by zones, type of intervention, and preferred schedules, aspects that the Unique Address Identifiers (IUE) were designed to improve efficiency in these activities.

In Living Lab 2, the most significant efficiency gains were observed in the postal area (electric vehicle circuits, proximity hubs, and lockers). For more detailed results, refer to deliverables D3.4 – Implementation Results in Living Lab 2 and D6.5 – Final Evaluation Report (Appendix 2 – Deliverables).

Activity 4 – Application Development

In this activity, the objectives for both OP4.1 – Technical-functional Specification and OP4.2 – Application Development and Evolutionary Maintenance were met. This activity was carried out in close coordination with the implementation of the pilots, particularly regarding dashboards and data import.

The necessary developments for engaging users with the Unique Address Identifiers (IUE) were completed. Users can now register on the platform and view performance indicators. They can also see assistance events for meters and their contribution to CO₂ reduction, add delivery preferences for postal services, and track waste bag movements and associated CO₂ emission reductions.

However, the system has not been very useful in the utilities sector because the entities/companies do not have their information and work organization set up in a way that allows them to use this system, which could potentially make their activities more efficient.

For more detailed results, refer to deliverable D6.5 – Final Evaluation Report (Appendix 2 – Deliverables).

Activity 5 – Communication, Dissemination, and Information

From January to March 2024, the following should be noted:

Continuous Update of the Website in English and Portuguese, SEO Optimization;

- **Project Posts:** Created and shared various project posts.
<https://drive.google.com/drive/folders/1YLAzhwVkWcl7z9AOHHp3LD03IQVtzZ4z>
- **Social Media Updates:** Regular updates were made on social media platforms including Facebook, LinkedIn, Instagram, Twitter, and YouTube;
<https://linktr.ee/i4efficiency>
- **Summary Video:** Produced a summary video of the project;
<https://drive.google.com/drive/folders/1mrsx33gSm9bE65vj3xLDBwEiY-FNduUe>
- **Hub Video:** Created a video dedicated to the HUB (online shopping);
<https://drive.google.com/drive/folders/1eAoaAMG5VGhFs79EmzgFF1ChnTdk8S9P>
- **Project Closure Event:** Organized the project closure event on March 25, 2024
<https://drive.google.com/drive/folders/1g4gJsaDQHD8ECQhpe6K3fh2Vb9SXw6Di>
- **Closure Event Video:** Created a video about the project closure event
<https://drive.google.com/drive/folders/1WurVjI0mgvhh1QMzzosu-npoiYrrH7w/>
- **Partnerships:** Strengthened partnerships with the Solo a Solo, Promoter, CL4BIO, Smile, and Sintra AmbiQuiz projects.
- **Promoter Event:** Participated in the Promoter event on March 4, 2024
https://drive.google.com/drive/folders/1NJhqCDw4GyRQiX02r0vcalbux6vxi_9H
- **Tratolixo Event:** Attended the Tratolixo event on March 8, 2024
https://drive.google.com/drive/folders/1SYB8vx6T641P2iHUCNDP_GBIVIR0ax5s
- **Publico Report:** Published an article in Público
<https://www.publico.pt/2024/04/05/local/noticia/sintra-criaramse-codigos-postais-ajudar-gestao-encomendas-residuos-2085820>
- **Noticias Lx:** Featured in the regional newspaper "Noticias Lx."
<https://noticiaslx.pt/2024/04/22/sintra-integracao-e-eficiencia-logistica/>
- **Green Savers:** Covered by Green Savers
<https://greensavers.sapo.pt/freguesias-de-sintra-integraram-projeto-para-reduzir-emissoes-de-dioxido-de-carbono/>

Final Communication Reports: Completed and attached reports include:

- D5.5: Final Communication Report
 - D5.6: Public Engagement in the Final Exploitation Plan
 - D5.7: Final Communication Plan
- **Access Reports:** All documents are available in the appendix (Appendix 2 – Deliverables) and online: <https://drive.google.com/drive/folders/1P2TTmi67wmXeYtPPG3DDpfALa8lhYQzO>
- **Update of the Digital Dossier:** The "Digital Dossier – Evidence" for the i4efficiency Communication Dossier is regularly updated. This includes consistently filling out the form related to the planned communication activities for the upcoming month. All materials related to Communication and Dissemination are continuously updated on the SGA Drive: <https://drive.google.com/drive/folders/1gF-JKNkUxE0JM4rk0fq1gecLiMfA3kQq>.

In terms of objectives, the final results indicate that the target audience reached through the information campaigns was exceeded. It is important to note that this figure is divided into two components: one based on various means used (with a reach of 388,233) and another based solely on the billboards placed at Living Labs 1 and 2. For the latter, it is reasonable to consider information from Dream Media, which monitored the billboard at the Tribunal Roundabout (Lab 1) with 480,000 views per month. For more details, see the table in D5.5 - Final Communication Report (Appendix 2 – Deliverables).

Activity 6 – Monitoring:

- **Review of Waste Collection Methodology:** In the final quarter of the project, we continued to review the waste collection calculation methodology based on new data emerging from the field and analysis of data entered on the portal.
- **New Sampling/Characterization:** Conducted a new sampling and final characterization at TratoLixo on March 8.
- **Assessment of Waste Collection Data:** Evaluated the performance and data related to waste collection at Living Lab 2 concerning the Massamá fair.
- **Completion of Deliverable D6.5:** Finalized the deliverable D6.5 – Final Evaluation Report (included in Appendix 2 – Deliverables), which provides a comprehensive assessment of the project's execution and considerations regarding the operations/activities carried out.

analyses conducted are applicable to both Living Labs. The combined document provides a comprehensive overview of the implementation results across both labs.

D5.4 - Communication Plan Update is also included. This report was not sent with the 8th interim report due to an oversight.

All documents, including the updated Communication Plan, are attached to this report in (Appendix 2 – Deliverables).

iii. Description of costs and assessment of financial impact.

Financial Execution Evaluation of the Project

Activities	I4efficiency - Smart Identifier for Integration and Logistics Efficiency						
	Expenditure (with indirect costs)					Financial execution rate (%) (compared to the total cost)	
	approved budget	costs between January 2024 to March 2024	Cumulative Sep 2021 to March 2024- final execution	expense presented in the payment request	expense to be presented in the final payment	In the reporting period	Cumulative-final execution
Activity 1 - Project management	145 983,47 €	14 424,81 €	149 735,71 €	122 835,44 €	26 900,27 €	9,88%	102,57%
Activity 2 - living laboratory 1	294 436,53 €	44 016,15 €	311 419,39 €	207 027,90 €	104 391,49 €	14,95%	105,77%
Activity 3 - Living laboratory-2	342 051,53 €	40 454,72 €	292 937,89 €	185 570,77 €	107 367,12 €	11,83%	85,64%
Activity 4 - Application Development	246 620,80 €	1 112,06 €	243 664,11 €	220 067,13 €	23 596,98 €	0,45%	98,80%
Activity 5 - Communication, information and dissemination	104 830,34 €	12 876,58 €	70 737,65 €	39 169,54 €	31 568,11 €	12,28%	67,48%
Activity 6 - Monitoring	41 923,16 €	3 796,82 €	41 895,88 €	38 099,06 €	3 796,82 €	9,06%	99,93%
Total	1 175 845,83 €	116 681,14 €	1 110 390,63 €	812 769,84 €	297 620,79 €	9,92%	94,43%

Table 5 – Expenses by activity (for the period and cumulative)

January to March 2024 and final execution	I4efficiency - Smart Identifier for Integration and Logistics Efficiency						
Activities/Entities	Expenditure (with indirect costs)					Financial execution rate (%) (compared to the total cost)	
	approved budget	costs between January 2024 to March 2024	Cumulative Sep 2021 to March 2024-final execution	expense presented in the payment request	expense to be presented in the final payment	In the reporting period	Cumulative-final execution
Activity 1 - Project management							
Associação ZERO	79 131,97 €	7 956,85 €	79 451,67 €	71 494,82 €	7 956,85 €	10,06%	100,40%
C M Sintra	0,00 €	1 845,00 €	1 845,00 €		1 845,00 €		
CIAUD							
Delta Post		1 845,00 €	1 845,00 €	0,00 €	1 845,00 €		
Marlo	66 851,50 €	2 377,96 €	65 794,04 €	51 340,62 €	14 453,42 €	3,56%	98,42%
VTMar	0,00 €	400,00 €	800,00 €		800,00 €		
Marlo AS							
Total - A1	145 983,47 €	14 424,81 €	149 735,71 €	122 835,44 €	26 900,27 €	9,88%	102,57%
Activity 2 - living laboratory 1							
Associação ZERO							
C M Sintra	18 944,74 €	1 572,68 €	8 478,23 €	0,00 €	8 478,23 €	8,30%	44,75%
CIAUD	26 211,68 €	0,00 €	26 211,67 €	26 211,67 €	0,00 €	0,00%	100,00%
Delta Post	218 283,29 €	42 443,47 €	243 649,28 €	147 736,02 €	95 913,26 €	19,44%	111,62%
Marlo	30 996,82 €	0,00 €	33 080,21 €	33 080,21 €	0,00 €	0,00%	106,72%
VTMar							
Marlo AS							
Total - A2	294 436,53 €	44 016,15 €	311 419,39 €	207 027,90 €	104 391,49 €	14,95%	105,77%
Activity 3 - Living laboratory-2							
Associação ZERO							
C M Sintra	18 944,74 €	1 572,68 €	8 478,23 €	0,00 €	8 478,23 €	8,30%	44,75%
CIAUD	26 211,67 €	0,00 €	26 211,67 €	26 211,67 €	0,00 €	0,00%	100,00%
Delta Post	265 898,30 €	38 882,04 €	225 167,78 €	126 278,89 €	98 888,89 €	14,62%	84,68%
Marlo	30 996,82 €	0,00 €	33 080,21 €	33 080,21 €	0,00 €	0,00%	106,72%
VTMar							
Marlo AS							
Total - A3	342 051,53 €	40 454,72 €	292 937,89 €	185 570,77 €	107 367,12 €	11,83%	85,64%

Activity 4 - Application Development							
Associação ZERO							
C M Sintra							
CIAUD							
Delta Post							
Marlo	246 620,80 €	1 112,06 €	243 664,11 €	220 067,13 €	23 596,98 €	0,45%	98,80%
VTMar							
Marlo AS							
Total - A4	246 620,80 €	1 112,06 €	243 664,11 €	220 067,13 €	23 596,98 €	0,45%	98,80%
Activity 5 - Communication, information and dissemination							
Associação ZERO	6 032,70 €	324,73 €	6 020,61 €	5 695,88 €	324,73 €	5,38%	99,80%
C M Sintra	1 909,53 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00%	0,00%
CIAUD							
Delta Post							
Marlo							
VTMar	96 888,11 €	12 551,85 €	64 717,04 €	33 473,66 €	31 243,38 €	12,95%	66,80%
Marlo AS							
Total - A5	104 830,34 €	12 876,58 €	70 737,65 €	39 169,54 €	31 568,11 €	12,28%	67,48%
Activity 6 - Monitoring							
Associação ZERO	41 923,16 €	3 796,82 €	41 895,88 €	38 099,06 €	3 796,82 €	9,06%	99,93%
C M Sintra							
CIAUD							
Delta Post							
Marlo							
VTMar							
Marlo AS							
Total - A6	41 923,16 €	3 796,82 €	41 895,88 €	38 099,06 €	3 796,82 €	9,06%	99,93%
Total	1 175 845,83 €	116 681,14 €	1 110 390,63 €	812 769,84 €	297 620,79 €	9,92%	94,43%

Table 6 – Expenses by activity and partner (for the period and cumulative)

January to March 2024 and final execution	I4efficiency - Smart Identifier for Integration and Logistics Efficiency						
Entities/Partners	Expenditure (with indirect costs)					Financial execution rate (%) (compared to the total cost)	
	approved budget	costs between January 2024 to March 2024	Cumulative Sep 2021 to March 2024-final execution	expense presented in the payment request	expense to be presented in the final payment	In the reporting period	Cumulative-final execution
Associação ZERO	127 087,84 €	12 078,40 €	127 368,16 €	115 289,76 €	12 078,40 €	9,50%	100,22%
Câmara Municipal de Sintra	39 799,01 €	4 990,36 €	18 801,46 €	0,00 €	18 801,46 €	12,54%	47,24%
CIAUD	52 423,35 €	0,00 €	52 423,34 €	52 423,34 €	0,00 €	0,00%	100,00%
Delta Post	484 181,59 €	83 170,51 €	470 662,06 €	274 014,91 €	196 647,15 €	17,18%	97,21%
Marlo	375 465,95 €	3 490,02 €	375 618,57 €	337 568,17 €	38 050,40 €	0,93%	100,04%
VTMar	96 888,11 €	12 951,85 €	65 517,04 €	33 473,66 €	32 043,38 €	13,37%	67,62%
Marlo AS							
Total	1 175 845,85 €	116 681,14 €	1 110 390,63 €	812 769,84 €	297 620,79 €	9,92%	94,43%

Table 7 – Expenses by Partner (for the Period and Cumulative)

According to the financial data presented in the tables and also in the file “02_CALL#4_I4Efficiency_Relatório final_Tabelas despesas.xlsx” (Annex 4 – Financial Information), the financial execution of the project stands at 94.43%.

Evaluation of Financial Execution by Activity:

Activity 1 – Management

The execution rate is above the budgeted amount (102,57%), due to additional expenses related to certification of accounts for the partners Delta Post, CMSintra, and VTMAR. These costs were not initially included in the budget but were presented for payment following discussions with SGA.

Activity 2 – Laboratory Live 1

Despite lower spending by CMSintra, the total expenditure exceeded the budget (105,77%). This is mainly due to increased costs by partners Marlo and especially Delta Post, who incurred higher operational costs on the ground.

Activity 3 – Laboratory Live 2

The financial execution is below the budgeted amount (85,64%). The shortfall is attributed to the inability to install the support systems for bags and the portal at the Massamá fair, along with lower spending by CMSintra.

Activity 5 – Communication, Dissemination, and Information

The lower execution rate (67.48%), is primarily due to the financial management decisions of partner VTMAR, who had a spending rate of 66.80%. Despite this, the activities and tasks were completed as planned without affecting the project's outcomes.

Activity 4 – Application Development and Activity 6 – Monitoring

The financial execution for this activities were aligned with the budget forecasts

Financial Execution by Partner:

ZERO, CIAUD and Marlo managed to execute their financial commitments nearly in full around 100%.

Câmara Municipal de Sintra as a lower execution rate (47,24%). This result is due to the fact that CMSintra did not fully allocate its work costs to the project. Notably, the municipality facilitated the use of two outdoor advertising spaces in Sintra for more than half of the project period without incurring associated expenses. This contributed to the lower reported expenditure.

VTMAR execution rate was lower than anticipated (66,80%), due to management decisions regarding financial participation. Despite this, the planned activities were completed as scheduled, and the lower spending did not impact the overall project outcomes.

DeltaPost's execution was slightly below the budgeted amount (97,21%). This shortfall is primarily due to the inability to install the bag support system at the Massamá fair, which was a planned expense but was not realized.

Payment Requests:

On January 22, 2024, supplementary financial documentation was sent for the 3rd payment request, including the request from the partner VTMAR. Following submission, additional clarifications requested by the SGA (Management and Evaluation Authority) were provided on March 1, 2024, March 5, 2024, and March 6, 2024.

On March 1, 2024, the documentation for the 4th payment request was submitted.

The organization of documentation for the 5th payment request and the final 6th payment request began during this period.

Execution in the reporting Period was 9.92% with cumulative and final Execution Rate: 94.43%

iv. Description of the Project's Contribution to Achieving the General Objectives of the EEA Grants and the 'Environment Program'

The final contributions of the project to Objective 3 and Output 3.3 of the Environment Program are as follows:

	Indicador	Atividade relacionada	Meta	Contributo do projeto
PA13 Objectiv 3	Estimated Annual Reduction in CO2 Emissions (in tons)	2 e 3	2077	1796,38
	Number of Jobs Created (disaggregated by gender and age)	1,2,3,4,5	11	11 Gender: 9 men, 2 women ages: 65, 62, 52, 53, 44, 38, 38, 27, 23, 23 e 21
	Number of Beneficiaries from the Implementation of Mitigation/Decarbonization Measures	2,3,4,5	24 722+200 000*	25 220 + 388233 (480 000)*
Output 3.3	Number of Innovative Mitigation/Decarbonization Measures Supported	2,3,4	9	9
	Number of Municipalities that Implemented Mitigation Measures	2,3,4	1	1

Tabela 8 – Table 8 – Contribution of the Project to Achieving the General Objectives of the EEA Grants and the 'Environment Programme'

* **24,722** are the direct beneficiaries, while the **200,000** target includes the population of the municipality of Sintra exposed to the planned dissemination campaigns. **388,233** people were reached through various means both inside and outside the municipality, and **480,000** people were exposed through billboards. The contribution of **480,000** includes data from DreamMedia for the billboard located at the

Tribunal Roundabout in Sintra. This number reflects the average number of people passing by the billboard each month, as this is the only billboard for which such data was available.

Final contributions of the project to Objective 3 and Output 3.3 of the Environment Program

Estimated Annual Reduction in CO2 Emissions (in tons)

Although the estimated reduction in CO2 emissions was below the target (1,796.38 tons CO2), it is important to note that this is not due to a lack of effectiveness of the innovative measures introduced by the project. Rather, the shortfall resulted from delays in the initiation of some operations, particularly in the postal sector (regarding the installation of logistical hubs) and especially in waste management. Issues included incorrect system usage by users and vandalism of containers. The delay in implementing the waste registration system at the Feira de Massamá also impacted the final figures presented.

Number of Jobs Created

Regarding job creation, there was a fluctuation in the gender balance due to staff changes at Delta Post and VTMAR in the final phase. For detailed information, please refer to the table “I4Efficiency_Identificação Elementos da Equipa de Projeto_Março2024.xlsx” and the contracts and CVs included in (Appendix 3 – Human Resources)

Number of Beneficiaries from the Implementation of Mitigation/Decarbonization Measures

The two values in question have often caused confusion: the target of 24,777 refers to direct beneficiaries of the mitigation and decarbonization measures, while the target of 200,000 considers the population of the municipality of Sintra exposed to the planned dissemination campaigns. Both targets were exceeded in these two aspects (see footnote description in Table 8).

Number of Innovative Mitigation/Decarbonization Measures Supported

The established targets were met:

1. Implementation of the Unique Address Identifier (IUE).
2. Hubs with electric fleet distribution (x2).
3. Smart Lockers and Smart Locks (x2).
4. Consolidation of utilities services (x2).
5. Biodegradable Bags with RFID Technology (x2).

It is noteworthy that, despite numerous constraints encountered during the implementation of the logistical hubs and the deployment of the smart lockers and locks, the distribution by electric fleet was carried out according to the planned schedule.

Municipalities that Implemented Mitigation/Decarbonization Measures

The target was achieved. Only the municipality of Sintra implemented mitigation/decarbonization measures within the scope of the project.

A detailed analysis of the indicators can be found in deliverable D6.5 - Final Evaluation Report, which is attached (Appendix 2 – Deliverables).

Final Assessment

The Municipality of Sintra, aligned with its environmental strategy, shares the objectives that guided the creation of the EEA Grants funding axis for establishing living laboratories focused on decarbonization and climate change mitigation.

The Municipality of Sintra is committed to ensuring that the infrastructures and processes now in place continue in the future and serve as demonstrations for expansion to other locations.

Delta Post will continue to support waste management activities for a few more months, and it is hoped that the results achieved will lead the SMAS of Sintra to maintain and replicate the system in other areas of the municipality.

Delta Post is also introducing the concept of Unique Address Identifier (IUE) in other municipalities where the company operates.

We anticipate that other companies operating in the Sintra municipality will begin using the proximity hubs created in the two living laboratories, and that these hubs may be replicated in other parts of the municipality and beyond in the future.

The results achieved demonstrate the potential for replicating the implemented measures associated with the creation of the IUE – Unique Address Identifier. This, in the future, should attract the interest of other municipalities, particularly for application in waste management components.

Indeed, this solution has potential for integration into urban waste management policies, particularly in compliance with European and national obligations concerning selective collection of bio-waste and the need for Portugal to meet European targets for waste preparation and recycling.

The i4efficiency project clearly holds potential for future involvement in Sustainable Urban Mobility Plans (SUMP). Specifically, it will play a crucial role in Sustainable Urban Logistics Plans (SULP) promoted at the municipal level.

Moreover, based on the collected indicators, it will be a valuable tool for creating Low Emission Zones (LEZ) or even Zero Emission Zones (ZEZ) by contributing to the mitigation of emissions from freight vehicles.

In the future, the i4efficiency project may gain national interest due to its maturity and contribution as an Urban Management Platform, aligning with the implementation of the National Strategy for Smart Territories (ENTI).

Appendices Folders for This Report

Appendix 1 – Evidence

Appendix 2 – Deliverables

Appendix 3 – Human Resources

Appendix 4 – Financial Information

O Promotor do Projeto

Nome	
Data e Assinatura	
Posição	

O Operador do Programa – Secretaria-Geral do Ambiente

Nome	Joaquim Dias
Data e Assinatura	<p>Joaquim Dias</p> <p>Assinado de forma digital por Joaquim Dias Dados: 2024.08.22 16:45:39 +01'00'</p>
Posição	Secretário-Geral-Adjunto