Iceland Liechtenstein Norway grants

REPÚBLICA PORTUGUESA
AMBIENTE E AÇÃO CLIMÁTICA

Programme "Environment, Climate Change and Low Carbon Economy

'Environment Programme

Financial Mechanism of the European Economic Area 2014 – 2021

Final Report

June 2024

01_Call#4_CascaisSmartPolebyNOVASBE

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

Index

Detailed description

The EEA Grants provide support for the implementation of living lab pilot projects for decarbonization and climate change mitigation. Living labs are new ways of working on innovation. They are defined spaces, designed in a delimited area, with a local identity and recognizable to citizens, which bring together various innovative technological solutions, with the purpose to mitigate carbon emissions, and which promote the active involvement of citizens, companies, public authorities, and universities.

With this in mind, a living lab was born in the municipality of Cascais, the Cascais Smart Pole by NOVA SBE.

This project is the result of a partnership between the Alfredo de Sousa Foundation, NOVA School of Business & Economics, Cascais City Council, Cascais Ambiente, Get2C, PRIO BIO and Veolia. The consortium also includes the participation of a Norwegian company, Avfallsteknisk Montasje AS.

The concept of the project is based on a physical space and a virtual space, providing people with a place for experimentation that aims to be a reference for the entire municipality and other cities, with the management of the living lab being a collaboration between private and public entities (a Private and Public Partnership for PEOPLE system).

To mark the start of the project, a kick-off meeting was held on May 13th 2021 with all the partners on the NOVA SBE campus, with both face-to-face and videoconference attendance. At this meeting it was decided to hold biweekly meetings between the consortium by videoconference to take stock of the activities, in particular to assess the progress of the work, the constraints encountered and changes to the plan. Throughout the project, the EEA Grants were sent the attendance records of the meetings and the topics covered; the record of attendance by means of a screenshot served as evidence of these meetings. We also took part in all the meetings organized by the EEA Grants and attended by the various consortia.

The project team was updated after the proposal was submitted, due to the need for internal reorganization of the consortium members due to other ongoing projects. However, it is important to note that the core team remained unchanged.

Nine activities were carried out over the 36 months of the project: 1. Roadmap for Carbon Neutrality; 2. Smart Pole Platform; 3 – Smart Pole Community; 4. Urban Mobility; 5. Energy Efficiency; 6. Circular economy in waste; 7. Green Living; 8. Cascais Smart Pole Market; 9. Cascais Smart Pole World Activity (Communication).

The project was officially launched to the public on September 9, 2021, at an event at NOVA SBE and on April 22, 2024, the project's closing ceremony (Annex 0A). Both events were attended by representatives of the EEA Grants.

<u>Addendum to the project:</u>

Following the departure of CEiiA, the consortium decided that responsibility for Activity 4 would be transferred to Cascais Ambiente and Get2C, guaranteeing the necessary means for success. It was proposed and unanimously approved that the activity would be renamed "4- Urban Mobility", keeping the objectives and indicators.

As a result, the project had its first addendum to the contract, in 2021 - motivated by the departure of CEiiA, which was communicated on September 17, 2021 by the consortium.

The second addendum to the contract was signed in 2023, following budget reprogramming.

Project audits:

Three external audits were carried out on the project:

1) 02/02/2023: Audit by the Agência para o Desenvolvimento e Coesão (Agency for Development and Cohesion), relating to implementation from July 1, 2021 to December 31, 2021, corresponding to the first payment request;

2) 05/06/2023: on-site verification of the project, carried out by Ana Salgueiro;

3) 04/04/2024: on-site verification of the project, carried out by Ana Salgueiro.

Meetings:

Fortnightly videoconference meetings are held among the consortium members to review the progress of activities. The main objectives of these meetings are:

- To assess the progress of the work;
- To discuss any constraints encountered;
- To make necessary changes to the plan.

The topics covered in the period jan-may 2024, as well as the list of attendees, are detailed in Annex0B. Photos from the meetings are also included in the annex for reference.

TABLE 1 – SUMMARY OF ACTIONS

ACTIVITY	ACTIONS TAKEN	EXECUTION METER	OBSERVATIONS
1.Roadmap for Carbon Neutrality	1.1)2019 GHG Emissions Inventory and efforts towards decarbonization 1.2) Selecting decarbonization options and defining the path to carbon neutrality	Executed	
2. Smart Pole Platform	2.1) Definition of Structure and Content 2.2) Platform Development and Implementation	Executed	https://cascaissmartpole.pt/
3 – Smart Pole Community	Activity 3.1) Sharing Community and 3.2) Microgreen Community	Executed	
	Activity 3.3 Renewable Energy Community (REC)	Partially executed	The REC is not still in place: Nova SBE began the process of setting up a REC, and in the meantime signed a contract to join a self-consumption production unit (UPAC) with a school and a paddle tennis court. One of the indicators was not achieved
4. Urban Mobility	4.1 Mapping the local ecosystem 4.2 Technological integration System testing and definition of use cases 4.3 Integration with Cascais Smart Pole Market 4.4 Widespread dissemination of the system	4.1, 4.2, 4.4 Executed 4.3 Not executed	Due to CEiiA's withdrawal, the activity had to be rethought and suffered successive delays. Activities 4 and 8 were linked, as a significant part of activity 8 was based on mobility. By the end of 2022, we recognized that it would not be possible to develop and integrate all the desired functionalities into MobiCascais within the project's timeframe to

ACTIVITY	ACTIONS TAKEN	EXECUTION METER	OBSERVATIONS
			connect with the Cascais Smart Pole Market. Therefore, the Smart Pole Market was replaced by the creation of an automatic platform to calculate the carbon footprint, and activity 4.3 was cancelled
5. Energy Efficiency	5.1) Data Analysis	Executed	
	5.2) IAQ Monitoring System Implementation	Executed, Revised	Extended to D Block's rooms and auditoriums (companies' rooms not running due do GDPR constraints)
	5.3) Execution of cross-platform interfaces	Executed, Revised	Upgraded with people counters
	5.4) Systems integration on platform and App	Executed	The platform is ready but still blocked by Nova SBE cybersecurity constraints
	5.5) Go Live	Executed	
6. Circular economy in waste	6.1) Circularity of Used Cooking Oils 6.2) PAYT through "gamification" system	Executed Executed	
7. Green Living	7.1) Transforming urban green spaces species and native vegetative shrubs	Executed	
	7.2) Replacement of the grass with autochthonous	Executed	
	7.3) Smart irrigation system	Executed	
	7.4) Volunteer activities with residents and students	Executed	
8. Cascais Smart Pole Market	8.1) Definition of a methodology for accounting for emissions and generating and exchanging carbon credits / 8.2) Preparation and implementation of a pilot.	Executed, Revised	Due to CEiiA's withdrawal, activity 4 had to be rethought and suffered successive delays. Activities 4 and 8 were linked, as a significant part of activity 8 was based on mobility. By the end of 2022, we recognized that it would not be possible to develop and integrate all the desired functionalities into MobiCascais within the project's timeframe to connect with the Cascais Smart Pole Market. Therefore, the Smart Pole Market was replaced by the creation of an automatic platform to calculate the carbon footprint. Through this platform, companies will be able to calculate their carbon footprint and establish a path towards neutrality on an annual basis
9. Cascais Smart Pole World Activity (Communication)	9.1) Strategic and global management of communication and stakeholder involvement	Executed	
	9.2) Sustent'Arte	Executed	
	9.3) Climate Summer School	Executed	
	9.4) Smart Pole Refill	Partially executed	

i.Achieved results

Activity 1- Roadmap for Carbon Neutrality

The aim of this activity was to carry out the carbon footprint of the living lab area and determine the effort towards carbon neutrality. This activity included two sub-activities, 1.1) Inventory of 2019 GHG Emissions and efforts towards decarbonization, and 1.2) Selection of decarbonization options and definition of the path towards carbon neutrality.

a) **Summary of activities**

1.1) 2019 GHG Emissions Inventory and efforts towards decarbonization

This activity allowed to understand the effort (in tCO2e) that the living lab players needed to make to achieve carbon neutrality. Based on this effort, measures and projects were defined to reduce the GHG emissions associated with their current activities. To determine the carbon footprint of the Living Lab area, a detailed checklist was compiled to ensure that all the necessary information was collected. This process involved several critical steps and the collaboration with Get2C and NOVA SBE was key to collecting data and processing the information needed to calculate emissions.

Next, a direct approach was made to the services present in the Living Lab area to obtain data on actual energy consumption, to get a clear and accurate picture of each service's emissions. To complement the data collection, a survey was conducted among the NOVA SBE population, using a hybrid format (face-to-face and online). The face-to-face approach was especially important to involve the academic community and obtain reliable data on the emissions associated with the population's mobility.

Based on the data collected, a Greenhouse Gas (GHG) Inventory of the Living Lab area was carried out. This inventory provided a detailed overview of current emissions and made it possible to identify priority areas for reducing emissions. Finally, data was collected to project GHG emissions up to 2050. This stage included modelling the effort needed to achieve carbon neutrality in the Living Lab area, allowing long-term goals and strategies to be defined.

1.2) Selecting decarbonization options and defining the path to carbon neutrality

This activity was based on an analysis of the mitigation measures already planned for the living lab and the municipal strategic plans underway or scheduled until 2050, such as the Cascais 2030 Sustainable Energy Strategy, the Cascais 2050 Carbon Neutrality Roadmap, the Cascais Smart Pole activities and the actions included in the NOVA SBE Green Guide. A comparative analysis of measures applied in other European cities and universities that have already defined carbon neutrality commitments was also carried out. The steps supporting this activity included a comparative analysis of mitigation measures applied in other European cities and universities and the identification and characterization of decarbonization options for the living lab area.

As a result of this activity, and outside the scope of the EEA Grants project, NOVA SBE realized that mobility is one of the most important components of its carbon footprint, and started its roadmap for sustainable mobility, which is currently being developed and is expected to be completed in the first half of 2024.

With regard to this activity's indicator, "Emissions reduction rate compared to baseline", we report a 65,0tCO2 of reduction in emissions based on all the project activities that had mitigation measures.

b. *Deviations to schedule and budget:*

Some schedule deviations were observed and reported during the project. No deviations regarding the budget.

c. Deliverables

All deliverables were submitted.

TABLE 2 – ACTIVITY 1 DELIVERABLES

Deliverables	Status of deliverables
D1A Inventory of GHG emissions 2019	Submitted "D1A Inventory of GHG emissions 2019"
D1B Effort towards decarbonization	Submitted; "1B-M5_Rel_esforço_descarbonização_230828"
D1C Strategic Options Analysis Report Delivered	Submitted; "1C-M8_Rel_Analise_opcoes_descarbonização_vf"
D1D Carbon Neutrality Pathway Report	Submitted; "1D-M9_Rel_Final_Caminho_Neutralidade_Carbonica_230828"

Activity 2 – Smart Pole Platform

The aim of this activity was to create a platform that would provide data generated and collected at the Cascais Smart Pole, guaranteeing specific information on all the activities underway, as well as allowing the submission of ideas and projects that would enhance the lab and the municipality. This platform promoted broad collaboration between the companies that developed the project and the users of the living lab. The activity encompassed two main sub-activities: 2.1) Defining the structure and content, and 2.2) Developing and implementing the platform.

a) Summary of Activities

Sub-activity 2.1: Definition of Structure and Content

The steps taken in this sub-activity included benchmarking on methodologies and projects implemented at the same level, both nationally and internationally, that use data through IoT. In addition, online civic participation projects in the field of climate change were benchmarked. A content model for the website was developed.

Sub-activity 2.2: Platform Development and Implementation

The activities carried out in this sub-activity included holding meetings to define the platform's functional and technical requirements, creating a briefing document with the contents for the platform, and consulting the market to contract services related to the development of the Participatory Platform.

The company Javali was contracted to develop the platform because it submitted the lowest bid, after consulting the market in accordance with the EEA Grants rules. The signing of the contract with Javali was followed by ongoing work meetings and the development of content for the website. The website was launched in August 2022 and can be found at www.cascaissmartpole.pt.

Preparations for the second phase of the website's development included the creation of a dashboard of project-relevant and global indicators linked to the various project activities, the publication of an infographic of the living lab's carbon footprint, the implementation of an individual carbon footprint

calculator, implemented at the beginning of April 2023, and preparations for the integration of indicators via APIs.

Since it went online, the website has received 13,000 visits. From 1/1/2024 to 30/4/2024, the project received 2600 visits (Annex 2A).

NOVA SBE will be responsible for maintaining this online platform after the project ends.

b) Deviations to schedule and budget:

Some schedule deviations were observed and reported during the project.

It was identified during the reprogramming of funds (jan2023) that there were funds allocated to this activity that would not be used. As a result, they were reallocated to activity 8.

c) Deliverables

Al deliverables were submitted.

TABLE 3 ACTIVITY 2 DELIVERABLES

Deliverables	Status of deliverables
D2A Development model for the platform	Submitted; "2A-Conteúdos_plataforma_briefing"
D2B Execution Report	Annexed to this report "D2B Relatório final"

Activity 3 – Smart Pole Community

The aim of this activity was to enrich life in the Living Lab and the mutual benefit of the population by developing a culture of sharing and community participation that would enable solutions to common interests and needs, stimulating productive activities and individual development to contribute to a stronger, empowered and sustainable community. This activity encompassed three sub-activities, 3.1) Sharing Community; 3.2) MicroGreen Community, and 3.3) Energy Community.

a) Summary of Activities

3.1) Sharing Community and 3.2) MicroGreen Community

Activities 3.1 and 3.2 have been integrated. The budget planned for the Microgreen Community was partially redirected to launch a request for services from an entity capable of identifying and mobilizing the living lab's target audience around a collaborative events agenda, as its budget was sufficient for acquiring microgreens and developing other activities. This agenda would integrate the living lab's various activities and ensure connections with the project's other activities, as well as with other relevant initiatives, networks, and events. In summary, there was no increase in expenditure, but rather a sharing of the budget between the Microgreen Community and the Sharing Community.

In this activity, a market consultation was carried out in order to hire an entity for "Community Management and Development of a Collaborative and Integrated Agenda of Events aligned with the objectives of this Living lab".

We consulted four entities and received three expressions of interest with their respective proposals: El Warcha, CEP - Circular Economy Portugal and Zero Waste Lab. For the final decision, we analysed the proposals from Zero Waste Lab and Circular Economy Portugal, opting for Circular Economy Portugal because it had the best ratio between the work proposal and the price, and was also the most economical compared to Zero Waste Lab. Subsequently, we held meetings with the selected company to start the work. To guarantee the continuity of the work carried out with the local Living Lab community and as part of the transitional strategy for leaving the territory, we considered it relevant to keep CEP as the implementing entity, due to the contextual knowledge developed during

the previous period of service provision. For this reason, the duration of the contract was extended by an additional eight months, from September 1, 2023 to April 30, 2024.

In the 3rd Progress Report, it was requested that the indicator for this sub-activity (Number of members of the Smart Pole Community Facebook page) would be changed. The social network Facebook is becoming less and less relevant, it doesn't allow members to be counted, and there are now other more significant social networks. Therefore, following the validation of EEA Grants, the indicator for activity 3 "Number of members of the Smart Pole Community Facebook page" was replaced by "Number of events organized under the Collaborative Agenda". According to the feedback received from the EEA Grants team, to comply with the request, and without substantially changing this indicator, it was changed to "Number of interactions on social networks with the project's Smart Pole Community (posts, shares and followers)" (target 1000). The verification source "Metric taken from the Facebook platform" became "Metric taken from the project´s website". From this point on, this change has always been referred to in these terms with an asterisk in the project's table of indicators and targets.

As part of the Microgreens activity, a market consultation was launched for the supply of microgreen kits to four entities. Two expressions of interest and respective proposals were received, within the established deadline, from the companies Ecocenter and InstaGreen. Both companies met the requirements requested in the market consultation, but InstaGreen presented the most favourable unit value. For this reason, the supply was awarded to InstaGreen, and because it was a one-off purchase, no contract was made.

Several events were planned and executed, including technical visits to visit local services and associations (e.g. cafes, restaurants, stores, ATLs (After-school Activity Center), among others) and to disseminate upcoming events on the agenda, to boost community participation in the workshops. The distribution of microgreens kits was a constant at many events to raise awareness about sustainability.

We also sought to interact with the Carcavelos Parish Council and held a meeting with Get2C and Circular Economy Portugal (CEP) on May 5, 2023. The aim of the meeting was to leverage synergies to carry out the activity "Dia da tua Rua" ('An afternoon on your street'), with the aim of reaching as many residents as possible. We identified Arraial de Bairro, held annually by Aqua Carca (a non-profit association based in Bairro da Torre, located in the Living Lab, dedicated to accompanying and developing young people and adults in their connection with water sports), as a possible event to integrate into the 'An afternoon on your street' activity. Subsequently, we held a meeting with representatives from Aqua Carca to establish an informal partnership. It was agreed to hold the activity 'An afternoon on your street' as part of the association's annual summer event ("Arraial").

In summary, various community involvement actions were carried out as part of this activity, listed in the points below:

1. Official launch of the Cascais Smart Pole (September 2021)
2. Beach clean-up as part of Sustent'Arte (May 2022)
3. Inauguration of Sustent'Arte and Atelier Mar de Experiências (June 2022)
4. "Dia da tua Rua" ("Your Street Day") event in Cascalitos Park (September 10, 2022)
5. Participation in Greenfest (September 23-25, 2022)
6. Leftovers without waste (October 22, 2022)
7. Edible Plant Identification Tour (December 1, 2022)
8. Christmas Market (December 1, 2022)
9. "Re:Costura - Do velho se faz novo" workshop (February 18, 2023)
10. Workshop "Skates de Plástico Reciclado" ("Recycled Plastic Skateboards") (March 11, 2023)

11. "Uma tarde na tua Rua" ("An afternoon on your street") activity (July 1, 2023)

12. Seed Collection and Conservation Workshop in partnership with Circular Economy Portugal (CEP) and organized by Seed Circles (October 28, 2023)

13. Artivism workshop for children (November 25, 2023)

14. Sensory workshop for children (February 17, 2024)

15. Earth Day Beach Cleanup (April 22, 2024)

16. Menstrual pads workshop (April 22, 2024)

17. Cascais Smart Pole Closing Ceremony and circular pioneer market (April 22, 2024)

The report on Activity 3.1 and 3.2 is provided in the Annexes (Annex D3E) of this Final Report.

b. *Deviations to schedule and budget:*

Some schedule deviations were observed and reported during the project. There were also some deviations regarding the budget: The budget planned for the Microgreen Community was partially redirected to launch a request for services from an entity capable of identifying and mobilizing the living lab's target audience around a collaborative events agenda, as its budget was sufficient for acquiring microgreens and developing other activities. This deviation was reported in the 4th Report.

It was identified during the reprogramming of funds (jan2023) that was necessary to renew the contract with Circular Economy Portugal (CEP). The contract with CEP was about to end in June 2023, and it would be necessary to hold more events to involve the community in order to achieve the KPIs. Therefore an increase of €4,000 has been requested for this activity.

c. Deliverables

All deliverables were submitted.

TABLE 4 – ACTIVITY 3.1 AND 3.2 DELIVERABLES

Lista de deliverables	Estado dos *deliverables*
D3A Sharing Community Governance Model	Submitted : "D3A - Caderno de Encargos, Capítulo 2 "Serviço Pretendido"
D3E – Final report of the activity	Annexed to this report: "D3E Relatorio final"

3.3) Energy Community

For the development of this subtask, the legal framework for Renewable Energy Communities (RECs) was first studied, followed by benchmarking of public and private initiatives and market analysis. A detailed stakeholder analysis was conducted, as well as a comprehensive project study assessing its feasibility, impact on CO2 reduction, target setting and implementation plan. In addition, the governance configuration and remuneration model were also analysed.

As part of this activity, a consultation was held to hire legal consultancy services, with Get2C requesting quotes from the companies TELLES, FB&A and Cuatrecasas, with Telles being subcontracted because it had the lowest quote.

One of the important milestones of this activity was the organization of the workshop "Comunidades de Energia Renovável em Cascais" ("Renewable Energy Communities in Cascais"). This event aimed to involve the local community, raise awareness and promote the active participation of residents, showing the benefits and opportunities offered by the project, which took place on February 15, 2022. This session debated the environmental and economic benefits of the REC and citizens had the opportunity to take part in a group dynamic to clarify their doubts.

After analysing the potential for creating an Energy Community in the living lab area, a number of entities with a high potential for partnership were contacted: investors, companies in the energy sector and energy producers located in the Cascais Smart Pole area.

After analysing the different possible paths for creating an Energy Community, and based on the study carried out, Nova SBE began the process of setting up a REC, this first phase consisting of: creating a legal entity, licensing and sizing. To this end, Nova SBE launched, in March 2024, a public tender for having support in the constitution of a REC. However, the project was only adjudicated, and a contract signed by the beginning of May 2024 (see annex E3.1).

In the meantime, and as reported in the last activity report, the contract to join a UPAC (ACC) signed at the end of last year (see annex E3.2) is still in force, allowing the purchase of surplus production from the other User Facilities (Colégio Marista de Carcavelos and the surrounding Paddle Tennis court).

As planned and reported, and with the preparation of the specifications having been completed (see annex E3.3), the International Public Tender for the purchase of photovoltaic panels and batteries for energy storage will be launched in the summer of 2024. Under the same tender will also be the acquisition of an indoor air quality measurement system, also one of the Cascais Smart Pole activities. (Activity 5).

The Energy Community designed within the scope of the Cascais Smart Pole is an integral part of Nova SBE's Energy Transition Plan and its Carbon Neutrality Roadmap, which has since publicly set the target to achieve carbon neutrality (Scope 1 and 2) by the end of 2026.

Finally, it is also important to mention that while the indicators for this activity, Energy Community, were not achieved within the project's timeframe, the work carried out in this activity will translate into other indicators, such as the constitution as a UPAC (in 2023), the increase in solar energy production capacity for self-consumption (in 2024) and the beginning of the legal constitution of a REC (2024).

b) Deviations from schedule and budget

As explained, it was not possible to set up the renewable energy community on the project timeline, but the pillars were built and NOVA SBE aims to move forward with this issue in the coming years.

No deviations regarding the budget.

c) Deliverables

All deliverables were submitted.

TABLE 5 – ACTIVITY 3 DELIVERABLES

Lista de *deliverables*	Estado dos *deliverables*
Potential analysis report (D3B)	**Submitted**; "3.3 A) Análise de potencial"
Energy Community Governance Model (D3C)	**Submitted** "Modelos de governo e de remuneração"
Capital raising budget (D3E)	E3.3_CadernoEncargosPainéis Solares_Nova SBE
D3E – Final report of the activity	Annexed to this report: "D3E Relatorio final"

Activity 4 – Urban Mobility

The aim of this activity is for everyone involved in the Living Lab area to adopt sustainable mobility behaviours, such as using public transport, shared bicycles, shared scooters, and so on. The smartphone application (APP) includes a quantification feature: it measures, in real time, the CO2 emissions avoided when a user adopts sustainable modes of mobility. The platform produced

sustainability metrics displayed on the project dashboard (https://cascaissmartpole.pt/mobilidade): number of trips, kilometres travelled, tons of CO2 avoided, which are essential for decision-making and defining future projects.

a) Summary of Activities

The work on Activity 4 - Urban Mobility began with the design of the local ecosystem (Activity 4.1). A checklist was created and sent between May and July 2021 to gather the information needed for the living lab area, and data collection began.

Some time after, CEiiA withdrew from the project, and Cascais Ambiente and Get2C took over the Activity, prompting a revision of the Activity schedule and budget. Because CEiiA played a central role, planned efforts from August to December didn't take place. However, internal progress continued with planning meetings to restructure the activity and prepare specifications for subcontracting a technological partner to integrate with the MobiCascais app.

Get2C and Cascais Ambiente held brainstorming meetings to define features for the MobiCascais App. Work began on these features, including defining KPIs, emission factors, and the connection to the Smart Pole Market from Activity 8. Specifications for a technological partner tender were also prepared.

Consecutively, a public procurement procedure for developing an app functionality and its integration with other apps was launched. The contract was awarded to Ubirider, S.A., thus initiating the planned sub-activities under Activity 4 - Urban Mobility.

After that, brainstorming meetings continued between Get2C and Cascais Ambiente to refine the Mobility App features and its connection with Activity 8. Mobility KPIs for the living lab were further developed. A meeting with Ubirider, the MobiCascais app developer, explored potential synergies and necessary technological integrations, and work was also done to understand the technological development needed for calculating avoided emissions through the app.

After the procurement procedure was finalised, Get2C calculated emission factors for Cascais' bus routes and technical meetings were held to develop the functionality for calculating avoided emissions in the MobiCascais app and integrating mobility KPIs into the project dashboard. Not long after that, Ubirider shared a status update on the integration structure.

During the following months, the avoided emissions functionality was developed with Get2C's support, which monitored KPI selection for the app. Details like itinerary search, trip details, and the "my carbon footprint" section were finalised. During the same period, coordination meetings were held, and several tests were conducted to ensure accuracy.

The functionality was released in January 2024, and a communication campaign was launched. The next step was integrating mobility KPIs into the project website's dashboard, and after defining the best way to display them, data transmission began and the mobility KPI information became available. The project was publicised through social networks associated with Cascais City Council.

b) *Deviations from schedule and budget*

Following the changes to the consortium's structure registered during the initial phase of this project, there was a need to alter both the timetable and the budget for this activity. These changes were submitted to and approved.

There was a transfer of funds from Cascais City Council to Cascais Ambiente: it was decided to assume the management costs for the correct and successful implementation of the activity by Cascais Ambiente. This happened at the time of the budget reprogramming.

There was also a need/opportunity to integrate more functionalities into a single app that would be replicable and usable for the entire population of Cascais, not just the population of the pilot zone (Cascais pop.: 216,000; pilot pop. 7,000).

c) .*Deliverables*

All deliverables were submitted.

TABLE 6 – DELIVERABLES ACTIVITY 4

Deliverables	*Deliverable Status*
D4A - Living Lab's Ecosystem Model	Submitted with 5th Report "4A- Modelo Ecossistema"
D4B - Mobility APP	Annexed to this report - MobiCascais App
D4C: Tests & Dashboard Report	Submitted with 8th Report- "4b - Tests & Dashboard Report"
D4D: Sessões de divulgação c/ stakeholders	Annexed to this report – "D4D - Divulgação atv. 4"

Activity 5 – Energy Efficiency

The purpose of this activity was to implement an energy optimization system, both for the HVAC system and for lighting, based on the acquisition of data from network access to Wi-Fi in the areas already mapped by CISCO systems. Processing this information would allow predictive mapping of the occupancy of a given space over a certain period of time.
This activity encompassed five sub-activities: 5.1) Data analysis; 5.2) Implementation of IAQ Monitoring System; 5.3) Execution of interfaces between platforms; 5.4) Systems Integration on platform and App; 5.5) Go Live.

1. *Activities during the whole project's implementation period*

Despite the work done over the first three months of the project's implementation period, there were certain fundamental points for the normal development of the Project that depended on the technical validation of the IT Department of NOVA SBE, without which it was not possible to delve into the topics planned in the three sub-activities in question.

This validation had a direct impact on the schedule included in the proposal and, as such, it had to undergo a necessary update.

The following actions were carried out during the first months:

i. Analysis and design of the architecture solution to be implemented;

ii. Specification of the solution and analysis of interaction between components;

iii. Zonal mapping on the Cisco CMX Platform;

iv. Meetings with the Maintenance Directorate and the IT Department of NOVA SBE to obtain the necessary technical validation for the development of the Project.

The schedule had undergone some changes compared to the presented proposal. However, those deviations did not compromise the deadlines set for the Project in general, nor for the sub-activities planned in Activity 5.

For the August-December 2021 period, there were scheduled activities mostly related with the development and implementation of the IAQ Monitoring System, although there was also an agreement with the deployment of the Interfaces between Platforms architecture and the Systems' Integration in Platform and APP.

These tasks had run according to our expectations, being noticed a little setback related with the IAQ probes delivery time delay. Despite this fact, we could see no major impact on the subsequent tasks' deadlines:

The following actions were carried out in the meantime:

i. Supply of materials: as it is written above, the necessary equipment for the IAQ probes' installation was supplied, more specifically programmable controllers, electrical cables, trays and many other accessories which integrate the communication infrastructures between the measuring points and the electric cabinet, except the probes themselves. The reason for that lied on the global scale crisis concerning semiconductors supply ;

ii. Installation: The communication infrastructures between the probes and the electric cabinet were settled, while the probes' delivery issue was just waiting for an endpoint, so the whole physical infrastructure implementation, gathered in the Project's scope, could reach its conclusion; it was installed an extension of 1980 metres electrical cabling, to which it would be connected 32 probes (some evidences can be seen on the attached files).

By the end of 2021, the timeframe was submitted to a revision, given Nova SBE needed its IT Department go-ahead so that Veolia could develop the project facing no constraints. This way, Veolia was forced, in December, to offset all the initial delineated targets.

More specifically, the geolocation integration was always seen as a non-negotiable condition to define the HVAC machinery time control model. The geolocation was closely linked to the wi-fi connected campus number of users calculation, thus promoting the flows of persons circulating throughout the University mapping approach. Nonetheless this subject still faced some GDPR constraints, but everyone was committed to seeking for a solution.

The delivery time issues due to our suppliers' rupture of stock, concerning the University classrooms IAQ monitoring gear, was an ascertainment. That could have been justified with the covid-19 pandemic outbreak we experienced since 2020 and with the global scale resources' supply rising crisis. Although, we still believed the timeframe we were delivering then would no longer be affected.

The first few months of 2022 were bringing us a brighter future concerning the overcoming of some uncertainty constraints regarding the issues reported before.

Therefore, we made big steps in developing our project's infrastructure:

i. The implementation of the IAQ Monitoring System, was completed with the installation of T and CO2 probes and presence and motion detection sensors (Attachments 5A, 5B, 5C, 5D, 5E, 5F, and 5G);

ii. The contractual work for the development of the IAQ Monitoring System was directly awarded to the company Domótica, as the Building Management System was installed and is maintained by them (Attachment 5H);

iii. The work carried out by Domótica, in collaboration with Veolia, was nearly complete;

iv. The synoptic panels of the BMS at the Nova SBE Campus already displayed the T and CO2 indices measured in the rooms of Block D (Attachments 5I, 5J, 5K, 5L, 5M, 5N, 5O, and 5P);

v. The difficulties reported before regarding the integration of geolocation have been overcome in collaboration with the IT department of Nova SBE. Geolocation was closely linked to identifying the number of users connecting to the campus wifi network, promoting the mapping of people flows within the University (Attachment 5Q);

vi. Veolia actively participated in all events organized by Cascais Smart Pole and in the communication strategy involving all stakeholders;

vii. The integration of systems into the platform and App was underway, with data parameterization already properly outlined.

The rest of the year 2022 was pretty much dedicated to developing algorithms, working on data analysis and testing all possible scenarios aiming for the best energy efficiency possible, always dealing with the Indoor Air Quality established threshold for CO2 of 800 ppm:

i. An integrated solution combining environmental control, energy resource system, and security applications was developed for the BMS at the Nova SBE Campus (Attachments 5R, 5S, 5T);

ii. The control algorithm was developed based on the criteria of optimizing energy efficiency and IAQ: presence and motion detection, CO2 concentration, AHU records, schedule, and temperature (Attachments 5AA, 5AB, 5AC, 5AD, 5AE, 5AF, 5AG, 5AH, 5AI);

iii. Veolia actively participated in all events organized by Cascais Smart Pole and in the communication strategy involving all stakeholders;

iv. The integration of systems into the platform was underway, with data parameterization already properly outlined; although, this task was slightly delayed as it was found that a greater amount of collected data and subsequent analysis was fundamental for the platform in question to be delivered in production.

The beginning of 2023 brought us the need for a new solution, since we lost correlation between Wi-Fi connected devices and the real number of people that were inside the campus rooms.

Therefore, Veolia submitted a request for additional funding and reallocation of funds, supported by the need to replace the georeferencing variable. Due to a change in mobile data availability policy by the operators, this variable no longer guaranteed a reliable correlation with the others.

The consequent approval implied the validation of timelines associated with new project stages, which were being assessed with the suppliers.

After having obtained the approval to proceed with the installation of people counters in all rooms of Block D, which would contribute more accurately to increasing the energy efficiency of the Nova SBE Campus, it was necessary to reschedule the dates associated with the various activities that make up the timeline. Nevertheless, the overall project completion timeline was not affected.

During the rest of the year 2023 and beginning of 2024, despite facing some constraints in provisioning the counting devices, all the infrastructure was rapidly installed and when finally everything was settled, the tests were carried out and completed successfully.

The work mentioned above has photographic records added to the "Evidence" folder (Attachments 5AJ, 5AK, 5AL, 5AM, 5AN, 5AO, 5AP, 5AQ, 5AR, 5AS);

Veolia still carried on analysing the collected data daily, after cleaning, preparing, and interpreting it in a *tour de force* to push the boundaries of the project for the best efficiency we could get.

b) Deviations from schedule and budget

Some schedule deviations were observed, but with the introduction of contingency solutions, we were able to complete the project within the expected timeframe.

In January 2024, during the financial reprogramming of the project, there was an extra request for funds, which was approved, in the amount of 44.976,44 €.

No deviations regarding the budget.

c) *Deliverables*

All deliverables were submitted.

TABLE 7 – DELIVERABLES ACTIVITY 5

Deliverables	*Deliverable Status*
D5A: Reducing energy consumption	Annexed to this report "D5A_5B - Relatório do Projeto - Eficiência Energética e QAI"
D5B: Monitoring indoor air quality	Annexed to this report: "D5A_5B - Relatório do Projeto - Eficiência Energética e QAI"

Activity 6 – Circular economy in waste

The aim of Activity 6 is the recovery of used cooking oils for biodiesel production, to be reintroduced into the waste collection dynamics of the pilot zone. The urban waste collection systems are further enhanced with a Pay as You Throw (PAYT) gamification system, aiming to increase recycling rates and reduce contamination of waste streams. This activity was held by partners Cascais Ambiente, Prio and ATM.

a) *Summary of Activities*

At an early stage of the activity, the first actions were to identify the location to install the used cooking oil (UCO) collection points as well as the biodiesel storage equipment. It was also necessary to identify the waste containers (*Ecopontos*) to be integrated into the pilot zone. The process of collecting and accounting for the oil was defined at this stage.

By November 2021 a skid was installed at Cascais Ambiente facilities to store the biodiesel to be produced according to the used cooking oil recovered (Annex 6A). The location to place ATM's oil collecting bins was established. A survey was carried out to know the UCO produced by the catering services in the pilot zone. The programming of Citypoints for the usage of the oil bins by the citizens as well as the assessment of the waste separation in the pilot zone began.

The installation and programming of "*Ecopontos*" and PRIO's recycling bins within the Citypoints gamification system was completed in March 2022 (Annex 6B). To promote citizen participation within the pilot zone, door-to-door distribution of informational flyers about the importance of separating used cooking oil (UCO) and the location of oil collection points (Annex 6C) was carried out. This information was also disseminated through social media and on the Cascais Ambiente website on a regular basis throughout the project. In addition, the necessary footings were placed for the fixation of ATM's oil collecting bins. Its construction and technological development became complete. To understand the potential for improvement in the proper waste separation in the pilot area, a preliminary characterization of mixed waste was conducted in April. This allowed to determine the rate of sorted waste incorrectly placed in the general waste container (Annex 6D).

The inauguration of the SKID took place on the 3rd of June 2022, coinciding with the first delivery of PRIO biodiesel produced from used cooking oil (UCO) collected in the pilot zone as well as the refuelling of the first vehicle. The event was attended by the Norwegian Ambassador to Portugal (Annex 6E). It was given access to the new equipment management platform for monitoring deposits and filling levels. In July, the semi-annual characterization of the ecological islands and undifferentiated containers in the pilot zone was carried out to monitor the contamination rates in the different waste flows. In August 2022, the installation and decoration of the ATM partner's smart oil collecting bins took place (Annex 6F), replacing the ones previously lent by PRIO, although these units have been kept to enhance the UCO collection within the pilot zone.

To promote residents' participation in the Living Lab, two awareness-raising actions were realised, along with material distribution (Annex 6G):

- "Dia da Tua Rua", an activity held at the Parque Infantil dos Cascalitos on the 10th of September. Flyers were distributed with information about the separation of waste and the correct use of ecological islands.

- "Greenfest", a sustainability event that took place on September 23rd, 24th, and 25th at Nova SBE. Flyers and funnels were distributed to help with the separation of oil waste. This activity had the participation of four volunteers from the Cascais Youth Volunteers from the Cascais City Council, who received training to raise awareness about circular economy concepts, the importance of UCO recycling, as well as the incentive system (gamification) implemented under Activity 6.

The Smart City Waste platform allows real-time monitoring of used cooking oil containers, providing valuable information to facilitate their emptying and maintenance. Cascais Ambiente vehicles are being powered with biodiesel produced from used cooking oil collected by the project. Community members who use the cooking oil and regular recycling bins within the Living Lab continued to earn Citypoints as incentive (PAYT) for their participation (Annex 6H). The Smart City Waste oil container monitoring platform with data from the throw-in points was updated for more detailed collection monitoring.

Biodiesel supply was suspended in March 2023 as the route taken by the waste collection vehicles exceeded the pilot project area, leading to an increase in biodiesel consumption that would surpass the quantity available under the project (Annex 6I).

On the 1st of July, the participation in the "Arraial Aqua Carca" event in Praceta do Girassol, allowed the delivery of available materials (explanatory flyers and funnels) for the recycling of used cooking oils by the residents along with "Cascais Jovem" volunteers. The event had the participation of over 40 people, where around 30 equipment were distributed to aid in the recycling of UCO (Annex 6J).

The Greenfest 2023 event occurred from the 24th to the 26th November, at Nova SBE, where approximately three hundred funnels screen-printed with the project's logo were distributed to visitors.

Throughout the project, 19,4 tons of used cooking oil were collected. Considering that the estimated quantity of UCO in the application phase was 13,5 tons, this corresponds to an increase of 43% (Deliverable D6B_Final record of the performance of the UCO collection system). As a result, the quantity of biodiesel produced was also superior. In total, 17,8 tons of biodiesel will be provided to Cascais Ambiente. Due to lack of storage capacity, approximately 2,8 tons of biodiesel will be delivered afterwards (Annex 6K).

b) *Deviations to schedule and budget:*

There was a deviation and postponement of the delivery of ATM oil bins for public use due to the COVID-19 pandemic and the delay in the supply of electronic components from overseas. In replacement and to meet the established goals, Prio has provided 5 additional oil-collecting bins.

The budget for the acquisition and installation of the skid deviated from the value foreseen due to the increase in the price of various raw materials. This deviation was suppressed by adjusting the available funds in the different activity categories. However, in the last few months of activity the costs with human resources have increased significantly, exceeding the amount stipulated in the budget. Although being aware of this, it was decided to present these costs anyway, pending the appropriate deliberation on its reimbursement.

It was identified during the reprogramming of funds (jan2023) that there were funds allocated to this activity that would not be used. As a result, they were reallocated to activity 4.

c) Deliverables

All deliverables were submitted.

TABLE 8 – ACTIVITY 6 DELIVERABLES

List of deliverables	Deliverables status
D6A Activity Execution Report	Submitted with this report
D6B Final record of the performance of the UCO collection system	Submitted with this report
D6C Analysis of environmental impact and emission reduction	Submitted with this report
D6D Publication on the system for the used cooking oil collection and biodiesel production	Submitted with this report
D6E Five smart collecting points for used cooking oil	M14 - submitted (see Annex 6F)
D6F: Analysis of the environmental impact of the activity and potential for replication	Submitted with this report
D6G Analysis of the impact on waste separation and contamination	Submitted with this report
D6H Report on the use of the gamification system and user satisfaction level.	Submitted with this report

Activity 7 – Green Living – espaços verdes resilientes

a) *Summary of Activities*

The activity aimed to transform urban green spaces, covering around 5 hectares, to adapt to climate change. It includes gardens and tree alignments, improving air quality, water retention in the soil, reducing urban noise and cooling surrounding areas. It promotes leisure, social interaction and well-being. The requalification and maintenance measures aim to reduce the 'heat island' effect and regulate the hydrological regime. Erosion control, carbon sequestration, bioclimatic comfort and water retention capacity are assessed. The activity also focused on environmental awareness and the active participation of residents of the pilot zone and Nova SBE students in the conservation of the spaces.

During the initial phase, green spaces with potential for intervention were identified, along with their bio-diverse characteristics and existing infrastructure. This foundational work set the stage for subsequent planning activities. Detailed planning was conducted to identify urban green spaces suitable for intervention. This involved collecting landscape architecture information to determine which areas held the greatest potential for conversion. Partnerships were established to amplify the project's impact, particularly in terms of carbon sequestration. Notably, a collaboration with The NAVIGATOR Company facilitated the planting of 7,000 shrubs and trees on the university campus, enhancing the area's capacity for carbon sequestration. Additionally, a partnership with the LIFE CLIVUT project provided two dozen local trees for planting, fostering scientific collaboration aimed at creating climate-resilient green spaces.

The first volunteer planting of native species took place on February 5 at the Nova SBE campus. This event, publicized through door-to-door leaflets and social media posts, attracted a diverse group of volunteers. A total of 700 shrubs and trees were planted, selected in partnership with Navigator and Nova SBE to minimize irrigation needs, maximize carbon sequestration potential, and enhance the aesthetic value of the space. Further bolstering the effort, the LIFE CLIVUT project contributed an additional 20 trees to this initial volunteer action.

Progress was made in identifying the green spaces to be converted and drawing up the technical project for transforming the irrigation systems. An outdoor yoga session was held on September 25 as part of Greenfest, a campaign to raise environmental awareness of the importance of green spaces.

Further advancements were made in characterizing the green spaces within the Living Lab and selecting species for planting to enhance climate resilience. A list of suppliers was compiled for the procurement of seeds, seedlings, and other necessary inputs.

Volunteering efforts at Pinhal dos Lombos focused on planting native trees and shrubs to replace those lost during the December 2022 storms. Attendance sheets for these and other volunteer activities are documented in previous reports. Nova SBE students also contributed by converting two roundabouts and seven flowerbeds managed by Cascais Ambiente at Quinta do São Gonçalo, replacing lawns with native shrubs, applying soil moisture retention techniques, and installing drip irrigation systems. Additionally, a volunteer initiative transformed the lawns at Cascalitos Children's Playground into dryland meadows to promote biodiversity and reduce water consumption. Equipment for remote monitoring and control of the irrigation system were also installed in this area. Flyers were distributed and signs installed to inform the public about the benefits of rainfed meadows.

Significant progress was made in monitoring the planting of native shrubs, applying soil moisture retention techniques, and installing drip irrigation systems for native species at Quinta do São Gonçalo. Localized irrigation equipment was introduced to minimize water loss through evaporation. Installation of advanced irrigation equipment included 23 controllers with long-range radio, a solar panel, an outdoor station, controllers for various sensors, an anemometer, and a rain gauge. A water counter with a pulse transmitter was also installed, along with a membership plan for daily communications to monitor the irrigation system. The BL-IP irrigation controller was employed for geolocalisation-based monitoring, managed through the MySOLEM app, to check sensor alerts, leaks, and water consumption. The system's water consumption began to be measured in July and August 2023, with ongoing development by technicians to ensure accuracy.

Monitoring continued for the planting of native shrubs and the application of soil moisture retention techniques at Quinta do São Gonçalo. The new irrigation platform underwent an adjustment period, with issues like program presets inadvertently activating the system during off periods in winter, and a water leak affecting monitoring data. These problems were addressed with system reprogramming and new counter installation. Atmospheric data for system control was being collected for further analysis. The water conservation intervention showed significant water savings due to the conversion to rainfed meadows and system automation, which allowed quick problem identification and resolution. Technical assessments allocated developers for remaining green areas at Nova SBE Campus, and meetings with infrastructure managers ensured alignment with existing irrigation systems.

The smart irrigation system's coverage area was expanded, marking the beginning of 'Phase 2' implementation, which included four additional streets. The SOLEM system continued to be used, with additional controllers installed to improve water efficiency and resource management. New equipment included 21 communication controllers, 2 solar panels, and 4 impulse and dry contact sensor controllers. Two counters with pulse emitters and a BL-IP irrigation controller for geolocalisation were also installed. Data collection for system monitoring began, highlighting issues like communication problems, minor leaks, and solenoid valve issues, all requiring adjustment. The smart irrigation system, powered by Hunter's ACC2-75D-P controller, provided advanced irrigation management and monitoring features, though an adaptation period was needed to address initial challenges.

Throughout the project, various aspects such as erosion control, carbon sequestration, bioclimatic comfort, and water retention capacity were continuously assessed. Environmental awareness was a key focus, with active participation from residents of the pilot zone and Nova SBE students playing a crucial role in the conservation of these green spaces.

b) Deviations to schedule and budget:

Some schedule deviations were observed and reported during the project.

It was identified during the reprogramming of funds (jan2023) that there were funds allocated to this activity that would not be used. As a result, they were reallocated to activity 4.

During the conclusion of the project, a decision was made to initiate Phase 2 of the smart system irrigation in one of the designated study areas. This phase aimed to enhance the efficiency and sustainability of the irrigation process within the green area.

The execution of this phase adhered closely to the planned schedule and encompassed several key steps:

Planning and Preparation (February 2024):

Comprehensive planning of the green area targeted for the smart irrigation system.

Evaluation and selection of suitable technologies and methodologies to be employed.

Vendor Selection and Quotation (Early April 2024):

Solicitation of quotes from three reputable companies specializing in smart irrigation systems.

Detailed comparison and evaluation of the proposals received.

Meetings and Coordination (Mid-March 2024):

Conducting meetings with the selected vendors to discuss project specifics, timelines, and deliverables.

Ensuring alignment on the project goals and technical requirements.

Order Placement and Financial Arrangements (Late April 2024):

Finalizing the order form and issuing the invoice.

Although the initial project timeline was set to conclude by the end of April 2024, the bank transfer for the payment was completed in mid-May 2024 due to procedural requirements.

Implementation and Monitoring (April and towards 2024):

Initiating the installation of the smart irrigation system in April 2024.

Ongoing monitoring and fine-tuning of the system to ensure optimal performance and water efficiency.

Despite the payment being processed in mid-May 2024, the project activities were completed on schedule. By meticulously following these steps and maintaining clear communication and coordination among all stakeholders, the project was completed on time and within budget, reinforcing the dedication to sustainability and smart urban solutions.

c) Deliverables

Al deliverables were submitted

TABLE 9 – ACTIVITY 7 DELIVERABLES

deliverables	*Deliverables status*
D7A Graphic elements for communication	Submitted with the 3ºRP (annex 7b) "CSP_FLORESTAS-FLYER_PREPRESS copy"
D7B. Technical project to transform irrigation systems	Submitted with this report
D7C Technical report on the planting and transformation of urban green spaces	Submitted with this report
D7D Performance report on the implementation of the Activity and its impacts	Submitted with this report

Activity 8 – Smart Pole Market

The initial aim of this activity was to create the Smart Pole Market, a mechanism for generating and exchanging carbon credits which was intended to make stakeholders responsible for their carbon emissions or compensate them for the emissions avoided due to sustainable behaviour. This activity included 2 sub-activities, 8.1) Defining the methodology for accounting for emissions and generating and exchanging carbon credits, and 8.2) Preparing and implementing a pilot.

a) Summary of activities

However, due to constraints encountered during the project caused by the departure of the partner CEiiA, EEA Grants were asked to reformulate the activity as it had been planned at the proposal stage, and it was replaced by calculating the carbon footprint of existing establishments within the living lab.

At the start of the project, several actions were carried out. Firstly, a benchmark of projects and methodologies for accounting for emissions and generating and exchanging credits was carried out. In addition, a deep dive was carried out into the methodologies identified, to assess the calculation of the individual footprint and how it could be applied to the Smart Pole Market. Brainstorming meetings were held to define the Smart Pole Market, where it was discussed how the Smart Pole Market should be interconnected with other activities and how to involve the community and the services present in the living lab, with a view to constructing the "Methodological Guide for Developing a Carbon Market Scheme on a Local Scale". The consortium met with MobiCascais (Ubirider) development team (that was working on Activity 4) to discuss the structure of the proposed API, identify possible constraints, synergies and adaptations needed to the existing application to meet our objectives.

Following these meetings, we recognized that it would not be possible to develop and integrate all the desired functionalities into MobiCascais within the project's timeframe, as such development would take several months. Therefore, as it was anticipated that it would not be possible to have a ready-to-use application with the desired functionalities in time and within the project schedule, Activity 8 ran a great risk of not being successful in the known way, since an essential part of the Smart Pole Market was related to mobility.

Therefore, during the reallocation of funds in January 2023, a solution was presented to adjust Activity 8 to this new reality: it was proposed to create an automatic platform that can be used free of charge by Living Lab companies indefinitely ("new" Activity 8). Through this platform, companies will be able to calculate their carbon footprint and establish a path towards neutrality on an annual basis. This proposal was accepted by the EEA Grants team.

As a result of the reformulation of Activity 8, the indicators and targets initially planned were replaced by the following, respectively:

TABLE 10 – REVISION OF ACTIVITY'S 8 INDICATORS AND TARGETS

INDICATOR	REVISED INDICATOR	TARGET	REVIEWED TARGET
Number of APP registrations	No. of participants in the product presentation and demonstration workshop	1000	20
Number of points for credit exchange	No. of Living Lab companies using calculation software	10	4

As part of the "new" Activity 8, the project began with the development of supporting documentation, including all the requirements for the free emissions calculation application. This process involved drawing up the Project Specification document and constructing the UX/UI diagram. The tender for the acquisition of software development services was then launched, involving the companies Delta

Soluções, Custom Project and Javali. The contract was awarded to Delta Soluções for having presented the lowest cost.

The following stages involved detailed meetings to align the final points before development actually began. During the tool's development, weekly status meetings were held with Delta Soluções to share developments and define next steps. The software was ready in March and a workshop was held to launch the software on March 21, 2024 (Annex8A). A promotional video was also produced to encourage companies in the living lab to use the software, which can be viewed at this link https://cascaissmartpole.pt/smartpole-calculator, section "*Quer calcular a pegada de carbono do seu negócio*?".

In order to achieve a wider reach, we are promoting the software throughout the municipality in collaboration with Cascais City Council and stakeholders related to entrepreneurship and the business sector. Our aim is to extend the software's reach beyond the pilot zone, much like MobiCascais (mobility), to cover the entire municipality. Besides Cascais City Council's own efforts to publicize the software, we have established contacts with the Cascais Business Association (AECC – Associação Empresarial do Concelho de Cascais), which will promote the project among entrepreneurs, particularly its members, through its communication channels. Additionally, Cascais City Council and AECC are planning to hold a workshop to present the software in September.

b) Deviations to schedule and budget:

Some schedule deviations were observed and reported during the project. It was identified during the reprogramming of funds that there were around 115,173.36 euros that would not be used, so it was proposed to reallocate these funds to this activity. With the new budget having a value of 126,471 euros, a reinforcement of the budget for this activity is requested in the amount of 11,297.64 euros.

c) Deliverables

All deliverables were submitted.

TABLE 11 – ACTIVITY 8 DELIVERABLES 8

Deliverables	**Status of *deliverables***
D8A **Relatório intermédio de acompanhamento da atividade**	Entregue com o 5ºRP, "Annex.8.1.D1_ProgressReport" (entregue antes da reformulação da atividade)
D8B - Software de cálculo	Annex 8A- Available at https://cascaismartpole.get2zero.pt/login
D8C Workshop de apresentação e demonstração do produto	Annex 8B
D8D **Relatório final de** acompanhamento **da atividade**	Annex 8C

Activity 9 – Smart Pole World Activity

The aim of this activity was to implement an involvement and communication strategy that would ensure the active participation of all people and stakeholders in articulating a common identity and vision that would be broadened and shared, fulfilling the goal of carbon neutrality in the local community.
This activity comprises four sub-activities, 9.1) Strategic and global management of communication and stakeholder involvement, 9.2) Sustent'Arte, 9.3) Climate Summer School and 9.4) Smart Pole Refill.

9.1) Strategic and global management of communication and stakeholder involvement

Cascais Smart Pole World is the concept that reflects the implementation of an involvement and communication strategy that ensures the active participation of all people and stakeholders, in the articulation of a common identity and vision that is widespread and shared, fulfilling the goal of carbon neutrality in the local community (pursuing the objectives of the municipality of Cascais).
Cascais Smart Pole World is the communication platform (which brings together various digital and face-to-face vehicles) for Cascais Smart Pole and defines the way in which all stakeholders get involved and participate in this living laboratory. It also aims to be a space for learning and education, knowledge transfer and awareness-raising, with a transversal approach in which everyone has space to learn, to teach and to set an example.
The objectives are:

1. Communicate the project, its vision and results to a wide range of audiences;
2. Promote the broad and participatory involvement of all actors, generating a connection with the public;
3. Sharing success and setting the agenda: not wasting opportunities to take the message to all citizens, taking advantage of the media agenda and transversality;
4. Presenting visions of the future: demonstrating the practical consequences of behaviours and attitudes resulting from the carbon neutrality imperative;
5. Transfer of knowledge;
6. Finding the means to promote the living lab as a good practice.
7. Within this activity we would like to highlight the creation of a digital communication dossier, along with the development of the concept and graphic identity. The cascaissmartpole.pt and .com domains were registered, and a communication plan was drawn up.

The following social networks were created:

- https://www.instagram.com/cascais_smart_pole/
- https://www.facebook.com/CascaisSmartPole

A press release was sent to some media outlets about the approval of the project, which was disseminated by eight specialized media. Subsequently, the final version of the Communication Plan was consolidated, including the mapping of stakeholders. In addition, a press release was issued for the presentation of the Cascais Smart Pole project by Nova SBE, followed by an official launch event at Nova SBE with a public presentation that took place in September 2021.
Press releases were also produced for the inauguration of Sustent'Arte, the climate literacy course and a press release on the closure of the project.

Communication materials were produced to accompany the project throughout, and the project's social networks and official website were actively promoted.

We would like to highlight the preparation, organization and communication of Cascais Smart Pole's participation in GreenFest at Nova SBE. The event took place between September 23 and 25, 2022 and included the following activities promoted by Cascais Smart Pole: Producers' market, Repair workshop, Talk on sharing experiences of local and responsible production and consumption, Clothes

swap, Cycle workshop, Sustent'Arte, Garbage with a Story, Construction workshop, Yoga Sámkhya class and awareness-raising actions focused on waste and the circular economy.

For the production of the various communication materials, quotes were requested from three companies, and two quotes were received. In terms of the consultation process, the proposal received from All Done was the most advantageous.
Quotes were also requested for the development of two videos:

- Video about Cascais Smart Pole and its results,
- Video about Cascais Smart Pole activity 8

The most advantageous bid for the two videos was from A Toca, which was awarded the contract on February 16, 2024. The award process and the videos are included as evidence in this final report.
Other communication actions carried out in addition to those mentioned in Activity 3.1 and 3.2:

1. Publicizing the installation and scheduling of ecopoints and recycling bins;
2. Volunteer actions to plant native species at NOVA SBE and convert lawns;
3. Inauguration of the skid and awareness-raising actions on used cooking oil;
4. Launch of the Cascais Smart Pole platform;
5. Technical visits to the galleries as part of Activity 5;
6. Celebration of themed days related to the environment;
7. Workshop at Nova SBE on "Renewable Energy Communities in Cascais";
8. Workshop to launch the software in the context of activity 8 on March 21, 2024;
9. Competition to give away ping-pong rackets and skateboards made from recycled plastic.

Version 4 of the updated Communication Plan is delivered with this report.

Furthermore, a study evaluating the social impact of the project was conducted by the close of the project, gathering and analysing the results of this project versus some of its expected initial outcomes. This study may be found attached (see annex 'A9 AVALIACAO IMPACTO SOCIAL').

9.2) Sustent'Arte

In June 2022, Sustent'Arte was inaugurated, a climate route that transforms waste collected from the sea and beaches into art, depicting some of the heroes who give voice to the fight against climate change.
The aim of this initiative is to demonstrate that artivism is a tool that gives a voice to artists who find in art the power of messages that reach people and inspire change. It is a cultural manifestation and culture is also one of the pillars of sustainable development.
Sustent'Arte was developed by Mar de Experiências and depicts 5 personalities recognized worldwide for their active role in combating climate change. A sixth piece is a representation of the Cascais Smart Pole project and a tribute to the inhabitants of Cascais. The pieces in this itinerary are created with waste collected from the beach and the banks of rivers and forests.
The personalities portrayed were chosen through an online survey published on the project's social networks. All the installations can be visited at Nova SBE's Carcavelos campus. Each piece has a QR code that directs visitors to the Cascais Smart Pole website and to a description of each of the personalities. A total of 130 kgs of waste taken from beaches and the sea was used.

As planned, the installations were delivered on the following schedule:

- David Attenborough – June 2022
- Jane Goodall – July 2022
- Greta Thunberg – September 2022
- Leonardo DiCaprio – September 2022
- Al Gore – December 2022
- Unknown Activist – March 2023

One of the sub-activities planned as part of Sustent'Arte was to carry out a coastal clean-up as a way of raising awareness and also to collect waste that could be included in the art installations, which was done in partnership with Vozes do Mar (Movimento Claro Cascais), Guincho Locals Associação and Circular Economy Portugal. This initiative took place on May 27, 2022.
The 6 installations will remain at Nova SBE for an estimated period of 4 months, and it has been decided that they will then go on a roadshow to schools in the municipality of Cascais. Cascais Municipal Council and Cascais Ambiente are responsible for this activity.

The final Sustent'Arte report was submitted with the 6th Report.

9.3) Climate Summer School

Climate Summer School faced some constraints throughout the project, since at the time of its design (in the application phase for the EEA Grants project) Nova SBE was designing Summer School programs on an open application basis. However, with the pandemic, their business model changed and they began organizing these programs on a customized basis and for a specific higher education institution. As a result, it is no longer possible to invite other students from donor countries, as it was in the application form.
The Climate Summer School was therefore replaced by a Climate Literacy and Action Course, which took place from March 25 to 27, 2024.
The Climathon did not take place and the indicator "Annual number of Climathon participants" has become null and void, as accepted by the EEA Grants.

The report on Activity 9.3 is provided in the Annexes to this Final Report (Annex D9D). It is worth adding that whilst the catering was adjudicated after consulting three different suppliers, speakers were selected based on their expertise on the topic at hand. Speaker's fees were thus determined according to the set, tabulated hourly rate practised at Nova SBE (175€/h).

9.4) Smart Pole Refill

As part of the Smart Pole Refill, meetings and technical visits were made to the living lab by employees from Get2C, CEP and Cascais Ambiente. The aim of the technical visit was to get to know local services and associations (e.g. cafés, restaurants, stores, after-school activity centers, among others) and to spread the word about the next events on the agenda, in order to boost community participation.

For the production of the reusable bottles, three companies were consulted, and the proposal received from NoBrinde was the one that showed the best relationship between what was wanted and the price, and also the one with the lowest value.
We encountered a lot of resistance from living lab services to joining a potential tap water network, largely due to the fact that the sale of bottled water is a crucial part of the restaurant business. So a new approach focused on raising awareness one-to-one with the support of a theatre group was decided upon. This approach took place on April 22, 2024, Earth Day.

The report on Activity 9.4 is provided in the Annexes to this Final Report (Annex D9C) .

2. *Deviations to schedule and budget:*

Some schedule deviations were observed and reported during the project.

It was identified during the reprogramming of funds (jan2023) that there were funds allocated to this activity that would not be used. As a result, they were reallocated to activities 3 and 8.

3. Deliverables

All deliverables were submitted.

TABLE 12- ACTIVITY 9 DELIVERABLES

Deliverables	Status of *deliverables*
D9A Strategic and global management plan for communication and stakeholder involvement • D9A Strategic and global management plan for communication and stakeholder involvement • Annex 9H Communication plan V2	Submitted with the 2nd Progress Report and delivered a final revision with this report Submitted with 3rd Progress Report
D9B Sustent'Arte implementation report (at the proposal stage it was planned for M8. Updated to M21 in the document "CascaisSmartPole_byNOVASBE - Descricao Tecnica dez 2021rev_v2") • Annex 9.13- Sustent'Arte implementation report Sustent'Arte final report	Submitted with the 6th Progress Report
D9D Smart Pole Refill execution report	Submitted in this report
D9C - Climate Summer School & Climathon execution report	Submitted in this report

Project indicators

The table below shows the result of the implementation status of the indicators and targets defined in the contract.

TABLE 13- PROJECT INDICATORS

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
1	Caminho para a Neutralidade Carbónica (Roadmap for Carbon Neutrality)	Taxa de redução de emissões face à baseline /Emissions reduction rate compared to baseline	%	5	Comparação entre inventário realizado na atividade 1 operação 1 do projeto e o resultado no final do projeto/Comparison between inventory carried out in activity 1.1 of the project and the result at the end of the project	1%	0,2%	65,0 tCO_2 reduced (Annex 1A). The estimated GHG emissions for the living lab in 2019 were 11.670 tCO2e.
2	Plataforma Participativa (Participatory Platform)	Número anual de visitas à plataforma e app mobile/Annual number of visits to the platform and mobile app	Nr	3000	Estatísticas do site / Website statistics	13000	100%	2600 in the period between January 2024 and May 15 2024
3	Comunidade Smart Pole - Comunidade de Partilha	Número de membros da página Comunidade Smart Pole no Facebook (Number of members of the Smart Pole Community in Facebook)/ *Number of social media interactions with the Smart Pole Community project (posts, shares and followers)/*	Nr	1000	Metra retirada das redes sociais/Interactions on the project's social networks (publications, shares and followers	14556	100%	we considered the number of posts+stories+instagram profile visits+instagram new follower+facebook posts+facebook visits+facebook likes until 15/05/2024

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
		Número interações nas redes sociais com a Comunidade Smart Pole do projeto (publicações, partilhas e seguidores)						
3	Comunidade Smart Pole - Comunidade Microgreen	Número de kits quick-start distribuídos/Number of quick-start kits distributed	Nr	100	Comprovativo de receção de Kit/proof of kit receipt	100	100%	5 participants at the energy café + 25 at the market + 5 offers at the final event
3	Comunidade Smart Pole - Comunidade de Energia (Renewable Energy Community)	N.º de contratos de energia verde celebrados (Number of energy supply contracts)/ *sem efeito (no effect)*	Number	300	Signed contracts	0	-	KPI cancelled/not effective. Although it was not possible to meet this indicator, it should be noted that this activity resulted in several other indicators, described in more detail in the final report, and in annexes available for consultation.
4	Mobilidade urbana	Número de registos na app (Number of app registrations) / *sem efeito (no effect)*	Nr	1200	Registo de inscrições / Registration accounting	0	-	KPI cancelled/not effective. According to the changes in activity 8. Given that the functionality for calculating avoided emissions has been incorporated into an existing application that is widely used by residents (MobiCascais), the indicator of "new registrations" is not illustrative of the real adherence of users to the solution developed
4	Mobilidade urbana	Número de créditos gerados(Number of credits generated)/ *sem efeito (no effect)*	Nº	390000	Metrics taken from the technology platform, which converts the value of CO2 emissions avoided into digital credits generated by adopting sustainable mobility modes.	0	-	KPI cancelled/not effective. According to the changes in activity 8: In light of the changes made in Activity 8 of this project, the design of a decentralized carbon credit transaction market - Smart Pole Market - has been annulled and replaced by the calculation of the carbon footprint of existing establishments within the living lab area. In view of this, the indicators "Number of credits

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
								generated" and "% of credits exchanged/transferred" can no longer be counted.
4	Mobilidade urbana	% de créditos trocados/transacionados (% of credits exchanged/transferred)/ *sem efeito (no effect)*	%	70	Métricas retiradas da plataforma tecnológica /Metrics taken from the technology platform	0	-	KPI cancelled according to the changes in activity 8: In light of the changes made in Activity 8 of this project, the design of a decentralized carbon credit transaction market - Smart Pole Market - has been annulled and replaced by the calculation of the carbon footprint of existing establishments within the living lab area. In view of this, the indicators "Number of credits generated" and "% of credits exchanged/transferred" can no longer be counted.
4	Mobilidade urbana – Mobilizar a comunidade para comportamentos de mobilidade sustentáveis	Emissões de CO2 evitadas (CO2 emissions avoided)	tonCO2	39	Métricas retiradas da plataforma que calcula, em tempo real, as emissões de carbono evitadas.	2017	100%	2017 kg CO2 - cumulative value of CO2 emissions avoided through trips recorded in the app
5	Energy efficiency	Taxa anual de redução dos consumos de energia elétrica (Annual rate of electricity consumption reduction)	%	2	Values to be taken from the BMS that measures the electricity consumption of the HVAC and indoor lighting sectors, comparing with the 2019 baseload	27,48%	100%	8 ton CO2e - cumulative value of CO2 emissions avoided by reducing energy consumption

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
6	Promover a economia circular e neutralidade carbónica nos resíduos	Litros de OAU recolhido mensalmente (Liters of UCO collected monthly)	%	50	Levantamento na recolha dos OAU / accounting from the used kitchen oil collection	1224%	2448%	This target is a measure of the increase compared to the base value set (0.0041 l/per capita). The execution rate is (=1224x100/50). Note: in RP5 the calculation method for this indicator was corrected, considering the monthly average per capita collection instead of the total accumulated since the start of the project.
6	Promover a economia circular e neutralidade carbónica nos resíduos	Litros de biodiesel consumido mensalmente (Litres of biodiesel consumed monthly)	ltr	500	Contabilização no ponto de abastecimento / accounting at the service station	Total acumulado: 18693 ltr Média mensal: 519,25 ltr	143,19%	Note: change in target indicator as it is more compatible with the quantities of biodiesel produced from collected UCO.
6	Promover a economia circular e neutralidade carbónica nos resíduos	Taxa de contaminação dos fluxos de residuos seletivos (Contamination rate of selective waste streams)	%	6570* *12%*	Amostragens semestrais da recolha / semestre samplings from collection	23%	191%	Note: target changed from 6570% to 12% in the third report
6	Promover a economia circular e neutralidade carbónica nos resíduos	Utilização da aplicação de gamification Living Labs (Use of Living Labs gamification application)	Nr	200	Backoffice da aplicação / app backoffice	133	67%	Nota: Number of users of the Citypoints actions (UCO collection and separation of selective waste) from March 2022 to March 2023
7	Green Living – espaços verdes resilientes	Poupança do consumo de água de rega em espaços verdes (Saved water in green spaces)	%	30	Contador de agua / water metering equipment	65,62%	100%	Available from the installation of the irrigation remote management system (June 2023)

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
7	Green Living – espaços verdes resilientes	Número de participantes em ações de plantação e sensibilização (Number of participants in planting and awareness-raising activities)	Nr	300	Registo de inscrições e participações / participation and registration accounting	182	61%	95 na ação de plantação (fev 2022) 15 na prática de yoga Greenfest (set 2022) (para estes eventos não foi necessária inscrição) 26 na ação de plantação (fev 2023) 35 na ação de plantação (mar 2023 - arbustos) 11 na ação de plantação (mar 2023- prado) Nota: alteração da meta do indicador
8	Cascais Smart Pole Market	Nº registos na APP /Indicador revisto: N.º de participantes no workshop de apresentação e demonstração do produto/Nº of registrations in the APP */Revised indicator: No. of participants in the product presentation and demonstration workshop*	Nr	1000 *20*	Registo de inscrições / Registration accounting	1	0%	Due to the reformulation of the activity that took place in 2023, the indicator was revised
8	Cascais Smart Pole Market	Nº de pontos aderentes p/ troca de créditos (No. of adherent points for credit exchange)/ *Indicador revisto: Nº empresas do Living Lab q utilizam o software (No. of adherent points for exchanging credits/ Revised indicator: No. of*	Nr	10 *5*	Declaração de adesão ao projeto / Declaration of project membership	0	0%	Due to the reformulation of the activity that took place in 2023, the indicator was revised.

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
		Living Lab companies using the software)						
9	Comunicação, Sensibilização e Educação Ambiental	Nº de momentos de sensibilização (workshops/ talks/ eventos) realizados (No. of awareness-raising events (workshops/ talks/ events)	Nr	12	Registo do número de ações/participation and registration accounting	27	225%	from september to december - seed workshop, greenfest, european urban resilience forum, from january to april: sensory workshop, energy café, carbon footprint calculation workshop, literacy course, skateboarding competition, beach clean-up, pioneers market, final event and pads workshop
9	Comunicação, Sensibilização e Educação Ambiental – Gestão estratégica e global	Nº de participantes nos momentos de sensibilização(No. of participants in awareness-raising sessions)	Nº	1000	Registo de inscrições e participações / participation and registration accounting	730	73%	12 pax sensory workshop + 5 energy café + 31 participants competition + 30 final event + 25 market + 2 workshop + 15 beach cleaning
9	Comunicação, Sensibilização e Educação Ambiental – Gestão estratégica e global	Interações nas redes sociais do projeto (publicações, partilhas e seguidores) (Interactions on the project's social networks (posts, shares and followers)	Nº	1000	Métrica retirada diretamente da página web/Metric taken directly from the website	14556	1456%	we considered the number of posts+stories+instagram profile visits+instagram new follower+facebook posts+facebook visits+facebook likes until 15/05/2024
9	Comunicação, Sensibilização e Educação Ambiental -	Quantidade de plástico recolhida das praias abrangidas pela atividade(Amount of plastic collected from the beaches covered by the activity)	Kg	10	Registos de balança/Scale records	10	100%	

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
	Sustent'Art e							
9	Comunicação, Sensibilização e Educação Ambiental - Sustent'Art e	Taxa de utilização do plástico recolhido das praias na instalação do Sustent'Arte (Use rate of plastic collected from beaches in the Sustent'Arte installation)	%	85	Percentagem calculada com base nos registos de balança/Percentage calculated on the basis of balance records	132	100%	each sculpture contains approximately 22 kg of waste
9	Comunicação, Sensibilização e Educação Ambiental - Sustent'Art e	Número de Scans do QR Code da instalação do Sustentar'te (Number of scans of the Sustentar'te installation QR Code)	Nº	1500	Registo de número de scans	1406	94%	we considered not only QR Code scanning but also visits to the Sustent'arte pages - analysis of the website
9	Comunicação, Sensibilização e Educação Ambiental - Climate Summer School	Número anual de participantes na Climate Summer School (Participants in Climate Summer School)/*Revisto (revised): Número de participantes no Curso de Literacia e Ação Climática (Number of participants in the Climate Literacy and Action Course)*	Nº	20	Registo de inscrições e participações / participation and registration accounting	42	210%	
9	Comunicação, Sensibilização e	Número anual de participantes dos países doadores na Climate Summer School(Annual	Nº	5	Registo de inscrições e participações / participation and registration accounting	2	40%	

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
	Educação Ambiental - Climate Summer School	number of participants from donor countries in the Climate Summer School)/*Revisto(revised): Número de participantes dos países doadores no Curso de Literacia e Ação Climática (Number of participants from donor countries in the Climate Literacy and Action Course)*						
9	Comunicação, Sensibilização e Educação Ambiental - Climathon	Número anual de participantes na Climathon/Annual number of Climathon participants	Nº	45	Registo de inscrições e participações / participation and registration accounting	0	-	KPI cancelled/not effective.
9	Comunicação, Sensibilização e Educação Ambiental - Smart Pole Refill	Número de pontos aderentes para refill (Number of points for refill)	Nº	10	Registo de inscrições e participações / participation and registration accounting	6	60%	
9	Comunicação, Sensibilização e Educação Ambiental -	Número de registos de refill (Number of registrations of refill)	Nº	200	Métrica retirada da plataforma que contabiliza, em tempo real, o número de refills /Metric taken from the platform that counts, in real time, the number of refills	0	-	KPI cancelled/not effective.

ID Atividade / Activity ID	Designação Atividade / Name of Activity	Indicador (indicator)/ *Indicador alterado (changed Indicator)*	Unidade / Unit	Meta (Target)/ *Meta alterada (changed target)*	Fonte Verificação / Verification Source	Final value	Target compliance (%)	Notes
	Smart Pole Refill							
* Gross error - the target of 12% should be taken as the average contamination rate for the glass/metal, paper/cardboard and glass streams by the end of the project.								

Project timeline

Annex "A.9.1 - cronograma comunicacao 30042024.xlsx" shows the timetable for the Communication Plan, which shows the work being done to publicize the project.

The project timeline of the project is annexed to this report (Annex 0C).

ii. Description of the project's costs and financial impact assessment

Financial execution rate

The overall financial execution rate of the project was 95%, as can be seen in the figure below.

Activity	Partner	Total cost (€) (budget)	Cumulative sum € (real)	Execution rate - real	Execution rate - project
Activity 0	FAdS	€ 23 137,20	€ 24 557,52	106,1%	100%
	Get2C	€ 66 457,61	€ 68 033,08	102,4%	100%
	NOVA SBE	€ 10 250,00	€ 10 243,46	99,9%	100%
Activity 0 Total		**€ 99 844,81**	**€ 102 834,06**	**103,0%**	**100%**
Activity 1	Get2C	€ 33 337,97	€ 33 330,54	100,0%	100%
Activity 1 Total		€ 33 337,97	€ 33 330,54	100,0%	100%
Activity 2	Get2C	€ 152 483,96	€ 152 421,96	100,0%	100%
	NOVA SBE	€ 16 092,00	€ 16 079,54	99,9%	100%
Activity 2 Total		**€ 168 575,96**	**€ 168 501,50**	**100,0%**	**100%**
Activity 3	Get2C	€ 65 602,22	€ 66 272,96	101,0%	100%
Activity 3 Total		€ 65 602,22	€ 66 272,96	101,0%	100%
Activity 4	EMAC	€ 61 972,56	€ 39 214,91	63,3%	63%
	Get2C	€ 61 147,23	€ 61 146,39	100,0%	100%
Activity 4 Total		**€ 123 119,78**	**€ 100 361,30**	**81,5%**	**82%**
Activity 5	VEOLIA	€ 245 163,90	€ 245 745,11	100,2%	100%
Activity 5 Total		**€ 245 163,90**	**€ 245 745,11**	**100,2%**	**100%**
Activity 6	ATM	€ 45 088,60	€ 45 266,00	100,4%	100%
	EMAC	€ 29 559,60	€ 29 807,55	100,8%	100%
	PRIO BIO	€ 63 007,00	€ 82 171,22	130,4%	100%
Activity 6 Total		**€ 137 655,20**	**€ 157 244,77**	**114,2%**	**100%**
Activity 7	EMAC	€ 54 281,50	€ 46 238,52	85,2%	85%
Activity 7 Total		**€ 54 281,50**	**€ 46 238,52**	**85,2%**	**85%**
Activity 8	CMC	€ 8 521,50	€ 8 521,50	100,0%	100%
	EMAC	€ 23 184,00	€ 7 672,96	33,1%	33%
	Get2C	€ 140 100,52	€ 138 372,59	98,8%	99%
Activity 8 Total		**€ 171 806,02**	**€ 154 567,05**	**90,0%**	**90%**
Activity 9	Get2C	€ 131 063,76	€ 107 583,97	82,1%	82%
	NOVA SBE	€ 14 000,00	€ 7 572,50	54,1%	54%
	PRIO BIO	€ 6 800,00	€ 752,25	11,1%	11%
	VEOLIA	€ 800,00	€ -	0,0%	0%
Activity 9 Total		**€ 152 663,76**	**€ 115 908,72**	**75,9%**	**76%**
Total		**€ 1 252 051,12**	**€ 1 191 004,53**	**95,1%**	**95%**

FIGURE 1 – EXECUTION RATE OF THE PROJECT

Some activities have execution rates above 100% - we don't expect expenses above the budget to be accepted. In these cases, the execution rate of the project is adjusted for 100%.

Referring to the comment of the 8th RP "the report shows a total project cost of €1,252,051, which is higher than the contracted amount (€1,251,971.03)." we present here a justification: in the budget file corresponding to the contract addendum an error of €80.58 was identified. The value of indirect costs is €90.959 and not €90.878 (contract value). Therefore, the value considered in the table above is that corresponding to the corrected value 1,252,051.12€. This discrepancy does not affect the implementation rate of the project, nor do we expect any arrangements to be made.

.

iii. Description of the project's contribution to achieving the general objectives of the EEA Grants and the 'Environment Program'

The Cascais Smart Pole by NOVA SBE is a living laboratory where everyone's interaction enabled progress towards carbon neutrality. The table below shows the project's contribution to achieving the Environment Program's objectives.

Additionally, although it was not foreseen in the application, 1 job was created: a 33-year-old woman, allocated to Activities 6 and 7. We would also like to point out that the number of people benefiting from the implementation of the project's mitigation/decarbonization measures is around 6,876, if we take into account all those who frequent the living lab, including Bairro de S. Gonçalo and NOVA SBE.

TABLE 13 - PROJECT CONTRIBUTION TO OUTCOME 3 AND OUTPUT 3.3 OF THE ENVIRONMENT PROGRAM

Programmatic Area (PA) | Objetiv	Indicator	Activity	Goal	Project's contribution
PA13 **Objective 3** Improving resilience and capacity to to climate change in selected areas	Estimated Annual Reduction Annual CO2 emissions (in tons)	3-4-5-6-9	1.177,42 t CO2	61tCO2 Considering the mobility (Activity 4) indicators: the cumulative value of CO2 emissions avoided through trips registered on the MobiCascais app is 2,017tCO2
	Number of Jobs Created (broken down by gender and age)	6 e 7	0	1 job: women, 33 years
	Number of people beneficiaries of implementation of mitigation/ decarbonization measures	all	6876	6715 (1662+5053)
Output 3.3 Low Carbon and Climate Change Mitigation Technological Solutions	Number of innovative innovative mitigation/ decarbonization measures supported	3-4-5-6-7-8-9	8	2 Activity. 5 - Implementation of an energy optimization system for HVAC and lighting systems Activity 6 - Use of biofuel in Cascais Ambiente's fleet
	Number of municipalities that have implemented mitigation measures	all	1	1

TABLE 14 - PROJECT'S CONTRIBUTION TO THE SPECIFIC INDICATORS DEFINED IN THE PROJECT'S MONITORING PLAN

Indicator	Related Activity	Target	Project contribution	Notes
Number of business opportunities resulting from less carbon-intensive practices created by the project	3-4-5-6-9	5	2	Activity 3 - kickoff for the formation of the renewable energy community Activity5 - implementation of an energy optimisation system for both the HVAC and lighting systems, Activity 6- Biodiesel production
Number of innovative mitigation measures funded	3-4-5-6-8	5	2	Activity 3 – Kickoff for the formation of the renewable energy community Activity5 - implementation of an energy optimisation system for both the HVAC and lighting systems Activity 6 - use of OAU in the Cascais Environment fleet
Number of low-carbon measures financed	3-7-9	3	4	Activity 5 -implementation of an energy optimisation system for both the HVAC and lighting systems Activity 6 - use of OAUin the Cascais Environment fleet Activity 7 - Tree plantation at Navigator Park Activity 9 –sustentar'art plastic reuse
Number of communication/awareness campaigns for the adoption of behaviours/lifestyles	3-9	12	27	Activity 9 - Launch event Activity 7 - Tree planting in Navigator Park Activity 9 - Coastal clean-up as part of Sustent'Arte Activity 9 - Inauguration of Sustent'Arte Activity 3 - CER workshop Activity 3 - Your Street Day Activity 3 - Greenfest Activity 3 - Disco Soup Activity 3 - Edible plant identification walk Activity 3 - Christmas Market Activity 3 - Textile upcycling workshop Activity 3 - Demonstration of reusing plastic to build skateboards Activity 7 - Volunteering at Pinhal dos Lombos to plant native trees and shrubs Activity 7 - volunteer action with Nova SBE students Activity 7 - volunteering for the conversion of lawns in the Cascalitos Children's Park Activity 3 - An afternoon in your street at Arraial AquaCarca Activity 3 - Seed collection and conservation workshop Activity 3 - Artivism workshop for children at Greenfest Activity 3 - Sensory workshop for children Activity 5 - technical visits Activity 5 - Workshop on energy efficiency Activity 8 - carbon footprint calculation workshop Activity 9 - Climate literacy and action course Activity 9 - Smart Pole Refill awareness action Activity 3 - Beach clean-up Activity 3 - Workshop on menstrual pads Activity 3 - Circular pioneers market Activity 3 - Skateboarding competition Activity 9 - Project closing session

Contribution of the project to bilateral relations with donor countries

The Cascais Smart Pole by Nova SBE project, funded by the EEA Grants, provided several opportunities to strengthen bilateral relations between Portugal and the donor countries (Norway, Iceland and Liechtenstein). These contributions can be summarized in the following points:

1. Collaboration and Strategic Partnerships:

Participation of Norwegian Partners: Collaboration with Norwegian partners, while facing challenges such as the shortage of electronic components during the pandemic, allowed for the exchange of knowledge and advanced technologies. The delivery of smart containers for collecting used cooking oil is an example of this partnership.

Exchange of Good Practices: The integration of innovative methodologies and technologies from donor countries has helped to implement effective solutions in Cascais, promoting an exchange of good practices and experiences.

2. Training

Climate Summer School: Although the Climate Summer School did not take place annually as planned due to the pandemic, the reorganization of the activity into a Climate Literacy and Action Course in March 2024 demonstrates a continued commitment to capacity building and training, involving participants from various backgrounds, including donor countries.

3. Supporting the Circular Economy and Sustainability

Technology Transfer: The implementation of gamification technologies and the collection of used cooking oil demonstrates the transfer of technology and knowledge from the donor countries to Portugal, supporting the circular economy and sustainability.

4. Community Involvement and Awareness

Events and Workshops: Workshops, awareness-raising activities and the creation of a carbon footprint monitoring platform made it possible to involve the local community and raise awareness of the importance of sustainability and carbon neutrality, following examples and initiatives inspired by practices in donor countries.

5. Strengthening Institutional Relations

Communication and Reporting: Fluid communication and the regular submission of progress reports and payment requests to the EEA Grants have strengthened trust and transparency between the institutions involved, solidifying institutional relations between Portugal and the donor countries.

6. International Visibility and Recognition

Dissemination and Promotion: Communication actions, including the Sustent'Arte exhibition and the creation of communication materials, helped to promote the project and its achievements internationally, highlighting the support and collaboration of donor countries

Conclusion

The Cascais Smart Pole by Nova SBE project has made a significant contribution to bilateral relations with donor countries through strategic collaboration, capacity building, technology transfer, community involvement and the strengthening of institutional relations. This project not only boosted innovation and sustainability in Cascais, but also strengthened the partnership and exchange of knowledge between Portugal and the donor countries, benefiting both parties.

Project Promoter

Name	Tomás Gonçalves
Date and signature	07/06/2024 FUNDAÇÃO Alfredo de Sousa
Quality	Finance Director

Programme Operator – General Secretary of the Environment

Name	Marco Rebelo
Date and signature	
Quality	Secretary-General