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Environment Programme in Action



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As Programme Operator of the Environment, Climate Change and Low Carbon Economy Programme (Programme Environment), the Secretary General for Environment and Energy Transition and the Donor Programme Partner, Innovation Norway, held on February 28th, at the Secretary General premises, a Matchmaking Event.



The aim of this first meeting was to stimulate lasting cooperation between donor countries (Iceland, Liechtenstein and Norway) and Portugal, encouraging bilateral project partnerships with special focus on three key areas: Deposit-refund system for beverage plastic bottles; Prevention of marine plastic littering and Increase resource efficiency in the construction sector.

This event was part of the initiatives of the Fund for Bilateral Relations, between the Programme Operator and the Donor Programme Partner, Innovation Norway.

About 70 entities and 100 participants attended pitching and parallel thematic sessions. In those parallel sessions, several invited speakers shared their views on the areas of application of Circular Economy principles in the Construction sector and plastics reduction, Valorisation of the Territory and sustainable development in Biosphere Reserves and transition to a low-carbon economy (Living Labs).

In more detail, the purpose of the event was to find partnerships in the areas:

1. Deposit-refund system for beverage plastic bottles (and cans) targets initiatives for development of:

- Products/ processes/ services related to projects for: Solutions for depositing plastic bottles (and cans);
- Solutions for re-use of plastic bottles;
- Solutions for producers to utilise recycled plastic bottles (and cans);
- Solutions for treatment and recycling of plastic bottles (and cans).

2. Prevention of marine plastic littering targets initiatives for:

- Reduction of single use plastic from the fast food sector, hotels, supermarkets;

- Reduction of the use for recycling/reuse of non-beverage plastic bottles, plastic packaging in production and retailing;
- Solutions to increase recycling in diversified waste collection points;
- Collection facilities for fishing equipment retrieved as marine litter;
- Supporting the development and use of biodegradable fishing nets.

3. Increase resource efficiency in the construction sector targets initiatives for development of innovative solutions and increase application of known solutions related to:

- The reuse and recycling of construction materials;
- The reduction of materials, energy and water consumption in the construction sector;
- The reduction of waste generation in the construction sector.

The Programme 'Environment, Climate Change and Low Carbon Economy', Portugal, is a part of the European Economic Area Financial Mechanism (EEA FM 2014-2021 with an endowment of around €24 M from EEA Grants and around €4M from National Budget.

The pitching session counted with registrations from 18 entities (public, private, SME and NGO) for presentations of projects and initiatives in areas related to the Event. The importance of partnerships with companies or associations of Donor Countries were underlined. To access the pitching session presentations please click [here](#). The first volume of the e_book [Environment Programme in Action](#) describes the main results of the matchmaking event.

First Parallel Session

Circular Economy (*construction sector*)

Moderator: Inês Costa (*Adviser of Minister of Environment and Energy Transition*)

Aline Guerreiro ([Gabinete ecotectura](#))

João Queirós ([AMORIM CORK COMPOSITES](#))

Luísa Magalhães ([Smartwaste Portugal](#))

The moderator introduced the theme of the session and the speakers, **requesting a brief summary of what has been the activity of various entities in the field of circular economy.**



João Queirós Amorim Cork Composites explained that from the beginning reuse is at the company's headquarters, because they always used Cork waste. The company has 26 business areas; one of them is the construction sector.

Luisa Magalhães da Smart Waste Association Portugal (ASWP), is working on consultancy in various sectors, one of them the construction sector. ASWP is developing a Project on Circular Construction (PRCD-prevention of construction and demolition waste (CDW)), that is funded by the Environmental Fund. The project aims to promote training actions for the stakeholders in the CDW domain in order to promote and integrate the principles of circular economy.

Aline Guerreiro, [Gabinete ecotectura](#), is working on an atelier of sustainable architecture and is developing a portal with information on sustainable construction and circular economy (<https://www.csustentavel.com/>). This

portal results from a partnership between [Gabinete ecotectura](#) and NGO Quercus. It is one-stop-shop gathering information in the circular economy domain, in particular, for sustainable projects, constructive solutions and eco products.

Amorim Cork Composites is working on industrial symbiosis for the last two years. Industrial symbiosis means that the company has been exploring the possibility of integrating other waste industries in its processes. João Queirós explained that for about 2 years (since 2017) it was adopted a new strategy of incorporating waste of other industries creating new raw materials, in particular for infrastructure domain. They have been adapting the production process and developing solutions to integrate recycled raw materials or waste from other industries in the process of Cork used in construction sector.

Within the framework of the activity of ASWP, **Inês Costa asked what are companies doing in their own operations and what are the barriers, aside from the regulations, preventing an improvement of circular economy in construction.**



Luísa Magalhães highlighted the role of reuse of the various components of construction and demolition waste (CDW). Also stressed the role of municipalities in the construction sector. Municipalities are responsible for licensing and can have a leading role encouraging reuse of RCD in this sector. The CDW value chain involves several stakeholders requiring capacitation, training and a more efficient waste management.

In national statistics, CDW are underestimated, since only a small fraction are considered. It is crucial to collect more data with better quality.

Inês Costa asked to Aline Guerreiro **if there is any architecture movement in Portugal towards ecological construction**. Are the architects integrating CDW in the Construction Projects?

Aline Guerreiro replied that definitely not! Only very few architects are considering CDW in the construction sector. The majority of the Portuguese architects do not

include circular economy principles in the buildings design.



People live in buildings, so they are its consumers and therefore architects should integrate the circular economy, through modular construction and integration of components in buildings. The architects should be the driving force of this movement and should do projects thinking at the end of life of the buildings and the integration of these concepts. This concept should be included in architecture schools. Aline Guerreiro stressed that it is crucial to enhance the confidence in the quality of CDW.

The floor was opened to the participants:

- Cátia Godinho 'Economia Circular Portugal'

Taking into account what has been said so far and knowing that there is a large chain of stakeholders and obstacles, how do you resolve this situation?

Luisa Magalhães from ASWP reported that generally it is a step-by-step approach: for each problem or constraint. The first step is the identification of the need for cooperation among the various stakeholders. This is one of the main problems because, in general, people do not rely on recycled materials. To this end, ASWP develops several actions of on site training and e-learning to teach and engage stakeholders on these topics and to attain a number of users as large as possible.

Ecotectura completed saying that the webportal <https://www.csustentavel.com/> integrates a selection of projects for demolition, sustainable architecture and case studies in circular economy. Taking into consideration the partnership established with NGO Quercus, every Thursdays it is exhibited a short film oriented towards sustainable architecture, circularity for projects based on reuse of materials. It also includes studies that evaluate the current demolition process with the new approach of selective demolition. Aline Guerreiro estimates that the selective demolition saves 20 per cent in value and 90 per cent of materials, however, regarding air conditioners and other specific equipment, savings are lower.

- One participant highlighted the role of equipment many times neglected regarding circular economy. In the case of air conditioners, this equipment can be more important than the use of materials (such as the project of renovation of a private hospital, which included the use of equipment).

Inês Costa said that it was very important to clarify the definition of circular economy including components such as air conditioning equipment, its demolition, storage and reuse for other products.

Is this process well communicated? Since there are recycled materials already in the market, why are they not used more often?

João Queirós said that Amorim Cork makes workshops for manufacturers to promote their eco products made from new materials such as recycled materials and cork. However, the strategy adopted is more oriented towards *business-to-consumer*, in particular, cooperation with architects that influence the market and the use of reused materials.

He added that the biggest concern is the lack of knowledge regarding the use of materials for construction and stressed the need to have a materials database used for buildings' constructions.

Luisa Magalhães from ASWP added that when we talk about the CDW we think always in the fraction of inert. In fact, the CDW includes all types of waste. It is important to know what can be done from the beginning to the end. The project that they are developing focuses on the life cycle of the building.

Summing up, Inês Costa said that it is crucial to create a Building Passport if we want to increase the circularity in the construction sector.

- One of the participants, an architect, stated that it is possible to recommend the use of materials that can be reused at the end of life of buildings. It is important to have a certificate or a set of specifications to improve the circularity in the construction sector. The industry plays an important role by introducing in the market products made of reused and recycle materials.

João Queirós replied that Amorim Composites currently have 25 business areas, including construction, and the majority of materials that they develop can be reused. The company, as supplier, has an insurance policy allowing them to receive materials 20 years later, with guarantee that it can be reused. This kind of information

should be easily available during the life cycle of the product.

- LNEG – **What about the transition from products to services. When is it going to happen?**

It is important to have a database of secondary materials to be used by architects, although they are reluctant to use it. It is also necessary to pass from waste to 'by-product', although this process is not attractive and it is time consuming.

Aline Guerreiro pointed out that there is a lack of confidence in 'by-products'.

Regarding secondary materials, João Queirós stressed the transition to this new business model is not simple. The supply of services it is not in the core business of the company; although they have been succeeding in the leasing for floor cover in specific spaces of intensive use. In the near future, the company may consider other services in the construction sector.

The final comments focused on the following points:

- The importance of regulatory framework. It is still a lifelong learning process.
- Fiscal incentives upon reused materials.
- Awareness raising and dissemination of information and best practices.

Summing up the session, Inês Costa highlighted the following:

- Focus on production and innovation in new materials;
- Increase the reuse of materials;
- Creation of materials passports and buildings passports.

Second Parallel Session

Territorial Enhancement (*Biosphere Reserves*)

Moderator: Sérgio Leandro ([IPL - School of Tourism and Maritime Technology](#))

Tiago Brito - ONGATEjo - [Reserva da Biosfera do Paul do Boquilobo](#)

Rita Alcazar - LPN – [Reserva da Biosfera de Castro Verde](#)



Afterwards, followed a brief presentation of the speakers, Tiago Brito from the managing body of the 'Paul do Boquilobo' Biosphere Reserve of and Rita Alcazar from the League for the Protection of Nature in the management body of the 'Castro Verde Biosphere Reserve'.

The moderator is currently the vice director of the School of Tourism and Marine Technologies of the Polytechnic Institute of Leiria (ESTM-IPLeiria), member of the National Committee for the MAB Program (UNESCO), co-manager 'Berlengas/ Peniche' Biosphere Reserves and member of the Working Group on Technical Guidelines for the Biosphere Reserves.

What was the experience in the management of the Biosphere Reserves? What are your expectations?

Rita Alcazar began with a slide presentation of the 'Castro Verde' Biosphere Reserve, the youngest Biosphere Reserve, classified in 2017.

Sérgio Leandro presented the 11 Portuguese Biosphere Reserves, explaining that the main goal is to achieve sustainable development. It is an inclusive process of local population, promotion of socio-economic development based on economic activities and tourism.

Rita Alcazar stated since 'Castro Verde' is the youngest Biosphere Reserve her experience is reduced. Regarding expectations, the entities that make the co-management of the reserve - LPN, Municipality of Castro Verde and Farmers' Association of Campo Branco made an Action Plan with six strategic priorities, with the aim of increasing the natural and cultural value of the reserve and achieving sustainable development in the territory. This Action Plan is currently being implemented. She pointed out that Biosphere Reserve Budget came from the funding of the three organizations and through cooperation with *stakeholders* that promote and finance activities, for example, in schools.

Tiago Brito said the Management Board of 'Paul do Boquilobo' Biosphere Reserve is composed by four entities – ONGATEjo (President of the Executive Group), the Institute for the Conservation of Nature and Forests (ICNF), the Municipality of Golegã and the Municipality of Torres Novas. These entities work in a coordinated way establishing strategic activities for the Biosphere Reserve and contributing for the budget.

Tiago Brito made a brief description of the reserve, stressing that agriculture is the main economic activity, highlighting the

close cooperation with the farmers. The main task was awareness raising for the role of farming in this Biosphere Reserve.

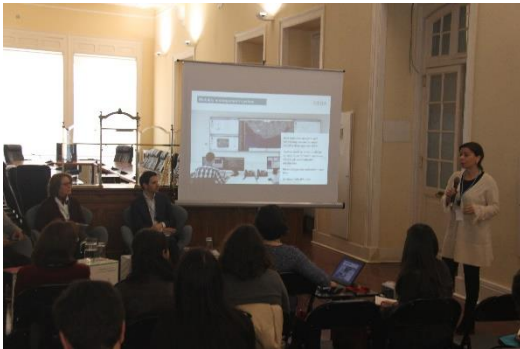
What are the main challenges in the management of a biosphere reserve?

Rita Alcazar recalled that challenges are also opportunities. Rita Alcazar stated that one of the main challenges of the 'Castro Verde' Biosphere Reserve is desertification, due to climate change. It is urgent an integrated study. They have already a perception of the state of biodiversity and agricultural activity, but are lacking an overall overview of climate change and its impacts in the Biosphere Reserve. The implementation of Climate change adaptation measures is urgent for the maintenance of the Biosphere Reserve.

Rita Alcazar also mentioned that communication is another challenge, particularly between the managing entities, the *stakeholders* and the National Committee for MaB (Man & Biosphere). The lack of awareness raising and visibility of the Biosphere Reserves inside the territory and at national level remains a challenge.

In spite of the identification of the ecosystem services, is still missing the monetary value of these services for this Biosphere Reserve.

Tiago Brito referred that there is some misunderstanding between 'Paul do Boquilobo' Biosphere Reserve and 'Boquilobo' Natural Reserve and it remains as one of the main challenges from a management point of view.



The relationship with the population, in particular, with the farmers, is the main challenge, since their activity is based on the use of the "environment". The 'Paul do Boquilobo' Biosphere Reserve has been promoting, among farmers, good practices for the efficient use of resources (water, soil, biodiversity).

According to Tiago Brito, the creation of 'Paul do Boquilobo' Biosphere Reserve brand is crucial to communicate its value, for populations awareness and to assure the identity of the Biosphere Reserve.

Can a Biosphere Reserve be sustainable?

Tiago Brito stated that are already underway some sustainable projects oriented to agriculture, such as the 'Yellow Corn' (the corn is produced in less productive land

through a low cost model for management biodiversity). The brand 'Paul do Boquilobo' Biosphere Reserve may be relevant for the *stakeholders*.

Rita Alcazar fully agreed that biosphere reserves could be sustainable. In fact, it is the ultimate goal. It is a "*work in progress*" done in cooperation with all stakeholders. The Biosphere Reserves are like a Living Laboratory, where can be seen that the territory is sustainable, a model of compatibility between nature conservation and the preservation of cultural and socio-economic values.

Regarding the population living in the Biosphere Reserves, Rita Alcazar said that it is part of the identity of the 'Castro Verde' Biosphere Reserve', based on agricultural activity. The management of the reserve must involve the populations, who should understand their role in the reserve. For the younger population, the school adopted in 2018, the Biosphere Reserve as one of the objectives of the curriculum plan in the 1st year of 1st cycle, and that program is still ongoing. They also have a program for pre-school, in which they use a passport to visit specific sites, including economic and cultural activities. Several workshops for the 2nd and 3rd cycles occur with the aim to demonstrate that the natural values are not

the only ones relevant for the Biosphere Reserve, and that must have an integrated approach including the socio-economic and cultural values.

'Castro Verde' Biosphere Reserve do not promote tourism directly, but are aware of the role of communication and dissemination of information.

Tiago Brito said 'Paul do Boquilobo' Biosphere Reserve develop a brochure with a map of paths and places of tourism. Tourism is important in this reserve, because it is included in the routes of 'Camino de Santiago' and include the national capital of equines - Golegã. In schools, some teachers include Biosphere Reserve in the curricula, but there is not a structured curriculum program. The Biosphere Reserve has planned information and dissemination material.

To finish, Rita Alcazar referred the EEA Grants role for 'Castro Verde' Biosphere Reserve by providing funds to develop a common basis of tools, for example on ecosystem services and communication, to promote its work in the management of this territory. Tiago Brito stressed the urgency of developing common tools to the 11 reserves in areas of education and conservation of nature.

Several **questions from the participants**, follows:

- Rui Martins, of the ISQ - what is done at impact management level for the activities in the Biosphere Reserves.

Rita Alcazar stated that the socio-economic component of reserves remains a challenge. In the case of the 'Castro Verde' Biosphere Reserve the copper mine – Minas Neves Corvo - has a high environmental impact. The activity of the mine has a precautionary approach, based on existing studies and others that are developed between the university and research centres to measure the impact on fish, lichens, dust, among others. For example, water consumption was one of the biggest impacts of the mine, and it solved by introducing a system for reuse of waters.

There is a close cooperation between the three managing entities to prevent other impacts. The Neves Corvo mine is a good example of the conciliation of the three pillars: nature conservation, sustainable development and knowledge. In the 'Castro Verde' Biosphere Reserve, it has been possible to maintain the population, while in the nearest municipalities the population has been decreasing.

Third Parallel Session

Circular Economy (*plastics*)

Moderator: Luísa Pinheiro (*Adviser of
Secretary of State for the Environment*)

Cristina Costa ([APIAM & PROBEB](#))

José Antonio Alracon ([Selenis](#))

Susana Garcia ([Logoplaste](#))



The moderator Luísa Pinheiro presented the theme of the session and the speakers from the panel. She began to make a summary of the waste sector in Portugal and presented the main figures for recycling. She underlined the challenges that the new policy for plastics impose to the member states, and that it is necessary to reflect on the path for plastics reduction, and what kind of additional instruments must be introduced. She emphasized the priorities of the Ministry for Environment and Energy Transition (MATE) in this domain, in particular the partnership with different sectorial associations for food and beverages, retailers; new rules for banning

the use of disposable and of single use plastic in public administration organizations and the recent law for plastic packaging associated to a deposit return system.

Following the introduction, she asked to the speakers **how they have integrated the theme of circular economy in their businesses.**



José Antonio Alarcon from Selenis (a company dedicated to the production of particular polyester solutions for a wide range of applications), pointed out that he works in the PET market for several years. He said that it is not possible to act alone. Selenis participates actively in conferences organized by several European associations of PET, in order to raise awareness for the recyclability of PET product, since it is the most recyclable plastic. He explained that the recycling has several problems, including the poor quality of the materials and the fact that there is not enough product for recycling. Europe consumes approximately 3 million tons of PET and only collects 1 million

tons. Selenis is committed to increase the plastic recycling to assure its sustainability.

Susana Garcia, corporate sustainability manager at Logoplaste is a Portuguese Group currently with facilities in 16 countries. Underlined that since last year they have strengthened the sustainability goals in the company, in order to integrate the challenges of plastics and circular economy into Company's Sustainability Strategy. They have always integrated their facilities inside of their customers' factories, which eliminates the need to transport secondary packaging because they are filled on site, allowing to reduce the weight of packaging. It is a sustainable business model. The priorities are the reduction of the weight for packaging and the increase of use of eco-design. The application of the BIOMIMETICS technology, i.e., replicate what they see in nature (*biomimic thinking design*) (such as the one that applied to the bottle of water Vitalis (development of PET bottle lighter 20 to 25 per cent with lower energy consumption). They incorporate recycled material in different types of bottles (about 30 per cent of the bottles has recycled materials and if the quality of

recycled product is very high the bottles are made of 100 per cent recycled materials). This is a huge challenge – to have recycled material with quality, since Logoplaste facilities are prepared to produce with 100 per cent recycled materials.

Susana Garcia stressed the importance of improving the selective collection and separation, to improve the quality of the recycled product and the products produced with recycled material. They established several strategic partnerships with suppliers, recyclers, customers in chemical and mechanical recycling domains. The chemical recycling is important for colour's packages. The mechanical recycling, the most usual one, works well with bottles without colour.

Cristina Costa from PROBEB/ APIAM¹ described the application of circular economy principles into beverages bottles business.

Regarding plastics recycling, technical issues are the most common. PROBEB and APIAM were the first associations to sign up the initiative launched by the Ministry for Environment and Energy Transition in order to ban single use plastic. It is now the momentum. However, sustainability is not a

¹ PROBEB is the Portuguese Association of refreshing drinks non-alcoholic drinks - non-profit business association, formed by companies engaged in the production and marketing of refreshing drinks non-alcoholic beverages. APIAM is the Portuguese Association of Manufacturers of

natural mineral waters and spring – an association that represents the companies that dedicate themselves to exploitation, packaging and marketing of natural mineral waters and spring waters and other packed waters.

new issue, for years, they have been working on water and energy efficiency and in the weight reduction, optimizing the design of the packaging. The application of the circular economy principles contributes to use less raw materials, reducing the use of transports and GHG emissions.

Circular economy challenges start in the selection of materials for packaging production. There are important inefficiencies in selective separation and collection causing many problems in the quality of material collected.



PROBEB/ APIAM signed two commitments under the agreement with the circular Ministry for Environment and Energy Transition: 90 per cent of plastics collection rate in 2020 and 25 per cent of incorporation rate in new recycled PET plastic bottles.

This is very ambitious, but the signs must be clear and the targets achievable.

The moderator summed up there is a need for more quantity and quality in materials collected. She underlined that given the

problems identified in the collection system, a deposit return system that will enter into force, can be the starting point for the collection and the quality of materials selected. There is currently a group of relevant stakeholders involved in deposit return schemes and there are ambitious targets to achieve.

In this context, she asked the speakers **what are the expectations and challenges introducing a new scheme and how do they consider this new scheme will solve the problems?**



José Antonio Alarcon from Selenis said the question of the colour of bottles limited recycling. An issue to solve on the demand side. The most efficient system of collection is the German one because it involves monetary compensation; if there are no penalties it does not work. The EU Plastics Directive Framework will work in some countries. In other countries with more environmental awareness, voluntary schemes have better results.

Susana Garcia from Logoplaste agreed that it is important in Portugal to implement the deposit return system with monetary reimbursement. It also underlines the importance of efficient separation; putting the bottle in the correct location, the design of the bottle, to have a better selection and recycling. It is very important to teach customers, in particular, the ones responsible for choosing the colours and the design of the bottle. It is the right time to improve these characteristics. Countries with deposit and return schemes have collection rates of approximately 90 per cent.

Cristina Costa agreed with both. From the point of view of producers, the biggest challenge is to achieve the targets agreed with the Ministry for Environment and Energy Transition and EU Plastics Directive Framework. PROBEB/ APIAM studied the different schemes existing in European countries. PROBEB/ APIAM concluded that countries with better collection rates are the ones who have implemented deposit return system. The only solution that allows you to achieve 90 per cent of the collection, in particular, in the beverages industry. Regarding the quality issues, the materials collected must improve, assuring less contamination, and that mechanical recycling become cost-effective avoiding

chemical recycling. Regarding coloured plastics, in Norway they are currently too restrictive in relation to eco-design requirements of plastic bottles. It is an issue to discuss with the companies. If we want to increase the percentage of recycled material for the food and beverages industries and reuse in new bottles, we need to establish some criteria in design and use of materials. This also includes labels, caps, etc.

If you must **design a deposit return system, what kind of policy do you recommend? A policy based on economic instruments such as taxes or based on tariffs?**



José Antonio Alarcon thinks the solution should focus on a fee per bottle. The fee is included in the price of the bottle and return if it is collected.

Cristina Costa agrees. There should be no environmental tax. Lithuania has the most recent scheme and in less than 2 years reached a 92 per cent collection rate. This is not against the material collection system for multipurpose but it must have a

supplementary scheme. It is necessary to find a solution easy and fast to implement.

- Cátia Godinho 'Circular Economy Portugal'

1- Is it possible to design a collection system with the objective of reuse and not for recycling? Is this being already investigated? What kind of bottles' design are we thinking?

Selenis - Germany was the only country with reusable PET bottles and it did not work.

Logoplaste – it makes sense that consumers reuse more durable PET bottles, and then at the end of life move forward for recycling.

PROBEB/APIAM – They have several materials beyond PET, such as glass, cans, tetra pack.

Consumers prefer the current model of throwing away bottles instead of carrying reusable ones. In our current way of life, supermarkets do not provide reusable bottles because people do not buy. The market for these reusable bottles is more oriented for hotels and restaurants industry with a high rate of reusable bottles. In Norway, life cycle analysis for various packaging materials and stopped using bottles made from reusable PET and glass. This analysis must also consider logistics issues at national level.

Labels are also important, in particular, what are the best materials for reuse.

In decision-making, scientific information and life cycle analysis are very important.

2 - What to do with the packaging of tetra bricks widely used in beverages packaging, in Portugal? Packaging of tetra bricks cannot be recycled in Portugal and it is quite expensive to export for recycling in other countries.

This type of packaging includes different materials (cardboard, aluminium and plastic), which is a challenge for recycling. It should be stated that there is a lot of misinformation about this type of packaging.

Communication to the consumers must improve. Marine litter is a serious problem, in particular PET. Consumer's behaviour must change. In Portugal, collection rates drop because consumers do not believe in the system.

- Carmen Lima 'Quercus'

PET is still a problem in Portugal and awareness raising must continue also for other materials such as cigarettes.

'Quercus' is a NGO. Carmen refers that there are many doubts regarding the collection of disposable plastic and single use plastic. Many restaurants do not have containers. They do not know if they should put the

bottle with or without cover. They do not know why this information does not appear on the packaging or sometimes the bottle itself has the wrong information. Frequently they put plastic bottles in undifferentiated litter. To solve these issues, Quercus developed an application to help consumers with simple information. They learned a lot about different types of packaging with different materials and sometimes they do not know what to reply. For example, a package of potatoes has different materials. What is the most suitable container? It is necessary to have more information, in particular regarding the most suitable container and what are the impacts of not making the correct deposition.

Why is so difficult to incorporate 100 per cent recycled material in PET bottles in Portugal?



Jose Antonio Alarcon, Selenis, agreed the packaging bottles does not have complete information, in particular, the way to recycle. How to ensure proper collection and selection in retailers' industry; since the

customer defines what he wants. It needs to involve all *stakeholders*. The retailers are the most relevant part in this process. For example, Lidl in Germany has its own system for collection, such as the Green Dot Society.

Jose Antonio Alarcon referred there is enough material and with quality to incorporate in bottles. Portugal can have bottles with 100 per cent recycled material. Japan for example has no bottles of colour, due to recycling.

Susana Garcia, Logoplaste. In terms of industry, there is no problem. The reuse of 100 per cent of recycled PET in bottles has to do with availability and quality questions. If it is for materials for contact with food, the production process is very demanding, with several requirements. They have installations in other countries that have packages with incorporation of 100 per cent of recycled material. It is necessary to increase recycling rates and the quality of the material.

PROBEB/APIAM, Cristina Costa agreed with Quercus, in the sense that it is not easy to communicate properly with consumers and with the fact that there is missing information. People want to participate and they do not have the correct information. It may have to be a regulatory process.

On the question of incorporation of 100 per cent recycled material, it was stressed that a material can be technically recyclable, depending of its origin. The targets for recycling depends on logistics; proper equipment for selection and quantity and quality of materials.

One of the problems are the bottles lids, not because of the materials, but due to the size. If the caps are not in bottles, they are lost in the process and do not reach the final destination for recycling. It is important to give this kind of information to consumers. The new EU Directive for Plastics establish in 2024 the obligation of all beverage bottles to have a fixed system of lids.

Summing up, the moderator highlights the following:

- It is necessary more quantity and better quality of material collected.
- There are legal constraints and requirements for packaging materials for food.
- Is crucial to improve communication for all stakeholders in the process; ensure commitment of all to find a national solution.
- Improve the communication process, in particular to consumers.

Fourth Parallel Session

Decarbonisation (Living Labs)

Moderator: Eduardo Santos (*Portuguese Environment Agency*)

Catarina Selada ([CEIIA](#))

Catarina Freitas ([Municipality of Almada](#))

João Dinis ([Cascais Ambiente](#))



The moderator Eduardo Santos presented himself and introduced the topic, stating that in the previous program EEA Grants the APA was the program operator in this domain. Then he invited speakers to a brief presentation.

Catarina Selada from CEiiA presented the concept of Smart Cities and showed examples of Smart Cities in the world, introducing its movement in intelligent network – regions. Namely, technological parks as ecosystems of innovation for creation of intelligent regions. In this context it was presented the Technological Park of Itaipu. She presented in detail the project "Living Lab Matosinhos" co-financed by

Environmental Fund. CEiiA is one of the 20 project partners. The "Living Lab Matosinhos" is a lab for "test, demonstration and deployment of technological, organizational and social solutions in a real context oriented towards decarbonisation of the city".

Catarina Selada presented the main objectives of the project and the technological solutions:

- Mobility system developed by CEiiA to the municipality of Matosinhos called 'mobi.me'. The 'mobi.me' system was already tested in 70 cities, having demonstrated a high success in energy efficiency and in CO₂ emission reduction. It offers a smart management system for mobility that integrates data and information from transports operators. This system supports decision-making and the definition of policies and programs, in particular, to provide disabled facilities or any other user needs. The mobi.me supports the methodology for measuring and monitoring CO₂ emissions, in real time, which evaluates the impact of the project on territory decarbonisation. The mobi.me incentives the adoption of sustainable mobility modes through a system of rewards. Catarina Selada shared the global vision of the platform, highlighting the

availability of interfaces for the cities' management (dashboards) and citizen interfaces (mobile applications).

- Installation of a system of bike-sharing and bike-parking, in 3 pilot stations, 8 docks, 3 totems and 30 electric bikes. CEiiA and Revolution Answer are responsible for monitoring.

- Installation of lockers for bicycles. Through an app for your smartphone, the user can access the location of equipment, confirm availability, make reservations and rent it. It also includes an autonomous station to support the cyclist and one-stop-shop solutions for repairs, washing, equip the bike, drinking water and recharge the batteries of electric bikes in auto consumption mode (zero energy from the grid).



João Dinis of Cascais Environment briefly characterized the Municipality of Cascais. He stated that the Municipality of Cascais was the first to adopt in 2017 the Climate Change Strategic Plan (PECAC). The PECAC is the

result of a multi-sectorial study that evaluates the impacts and opportunities at the municipal level in an integrating climate change impact in plans, policies and measures in the Municipality. He also mentioned that the PECAC was prepared by a multidisciplinary team, coordinated by the research group of CC-AMI from Science Faculty of Lisbon (FCUL).



The PECAC focused on climate and socio-economic scenarios taking into consideration the expected impact in the Municipality of the most vulnerable sectors, such as tourism, health, water, biodiversity, agriculture and coastal areas.

Following the PECAC implementation, currently is in course the developing of the Cascais Climate Change Strategic Plan (BP3C2), which is a political commitment of the municipality. The BP3C2 defines 13 concrete measures resulting in 80 actions with targets up to 2030, in line with the 17 sustainable development goals (SDG), and

any other plans, measures and actions currently implemented in the Municipality.

These measures included the integration of ecosystems services such the strengthening of dune systems; non-structural measures (strategies, information, plans and programs) and on a smaller scale, grey measures (e.g., physical interventions in the landscape, construction of new infrastructure). The 13 measures need an investment of €11,500,000. João Dinis highlighted 4 of 13 measures defined in the plan:

- Communication campaigns and awareness raising: for more than 200 qualified professionals and about 20 communication actions that reached about 30 000 citizens.
- Resources. The measure is directed to the improvement of water supply systems.
- Health and civil protection: monitoring actions, cleaning of risk areas and information sharing.
- Ecological infrastructure and more resilient urban green spaces. This measure involved planting 17 native species, 5000 volunteers, development of manuals of best practices for the design and maintenance of urban green spaces and measures of maintenance of dune systems.

- Planning and land use planning.

Summing up, João Dinis stressed:

- 9% of the measures are fully implemented, 48% are of continuous implementation, 18% are still in implementation as planned and 25% of measures are awaiting the beginning of works.

- The main challenges were teams' coordination and the harmonization of the knowledge level in each team.

- The priority actions included formation and dissemination/communication.

- Adoption of natural solutions regarding the vulnerability to climate changes.

- Climate Action Strategies will create the potential for innovation and adoption of new solutions and approaches contributing for an efficient use of resources.

Catarina Freitas from Municipality of Almada presented the Living lab for the decarbonisation of Almada/Cacilhas - LVpD Almada/Cacilhas).

The project with a total investment of 1.3 billion euros co-financed by Environmental Fund in 500 thousand euros. For the development and implementation of the Living Lab it was created a consortium with several entities, to deliver solutions in the areas of mobility, circular economy and renewable energy.



Catarina Freitas mentioned some of the initiatives: (i) FAROL (headlamp) - Center and platform; (ii) Cacilhas WATT -Pavement PV; (iii) TROCO – local currency.

(i) FAROL. It is a centre of local urban inverse logistics, which aims to consolidate all of the logistics of the LVpD, performing the operations of reception of commodities and other goods, distribute it to the various points of the LVpD. The Centre is a modular and flexible building able to adapt to the volume/dimension of service. It integrates the concepts of circular economy, with the aim to become a free carbon building.

(ii) Cacilhas Watt. Pilot installation of a pavement solar photovoltaic (PV) for demonstration of decentralized production of renewable energy in the urban environment. This deck will be an integral part of the energy solution designed for the FAROL Centre.

(iii) TROCO. It is the local currency (virtual) of LVpD Almada and aims to encourage residents to separate their organic waste

contributing to the local economic activity and encouraging the use of public transport. Every time that organic waste selection is well succeed, the locals receives the virtual local currency that can be changed in local retailers, and or to pay public transports in the living lab area (LVpD Almada).

As a conclusion, Catarina Freitas said that the LVpD Almada focuses on Zero Carbon, Zero Waste, Integration, Eco-efficiency and Circular Economy.

Questions and Answers was opened:

Vera Durão (IST) - These systems produce large quantities of information (big data). How to select and use this data efficiently? What is the possibility to export these experiences?



Graça Espada (SG) How do the municipalities of Matosinhos, Almada e Cascais face the opportunities of the current EEA Grants programme?

Catarina Selada, João Dinis and Catarina Freitas said that 'Big data' is a challenge, but

the systems developed are already prepared to extract the relevant data and transform into useful information.

'Export' of ideas and experiences, of course. Matosinhos will launch a spin off for the system 'mobi.me'.

Other comments:

Cascais mentioned the need for fiscal incentives.

Almada said the use a local 'currency' was difficult to adopt by the locals due to regulatory constraints.

Matosinhos mentioned the importance of training and capacitation.