What Shall We do With Plastic – ALENTEJO CENTRAL PLASTIC FREE

Introduction

The project now under design, albeit delimited in time, intends to lay the foundations and give shape to a long-term strategy in the territory, thus having a life cycle that extends beyond the initial period of three years. In fact, this initial period is assumed as a start-up and test phase, which will allow us to determine the best solutions to be developed towards a lasting and sustainable paradigm shift that might lead us to an improvement in the environmental quality and economic growth and, at the same time, that works as an agent of mentalities' transformation.

Project Objectives

As a consequence of this project we wish to change the current situation aiming to achieve the following results:

- Increase the quality of urban life in Central Alentejo
- Increase the level of participation of inhabitants in urban waste management
- Decrease the disposal of plastic waste in landfills
- Increase the quantity and quality of separate waste for recycling
- Increase the network of ecopoints and their use
- Increase the level of awareness of the population and institutions in the territory, aiming at a change of mentality and procedures, based on a paradigm shift towards the use of plastic

- Increase the weight of Green Economy in regional Gross Value Added
- Increase the weight of Green Economy in regional employment
- Ease the creation of "green" procurement mechanisms
- Improve the effectiveness and efficiency of the UR (Urban Residues) management system, with a focus on plastic
- Improve the monitoring system of ecopoints' filling
- Improve energy efficiency of the regional waste system's facilities, and of waste collection fleets
- Value plastic waste through the production of activated carbon
- Promote the creation of a line of research on the use of biological agents in degradation (biodegradation), or others, in order to find new ways of solving the problem
- Create an economic model of the system's circularity
- Create an "Environmental Fund"
- Increase incentives to the integration of circular economy in companies

Problem Definition

The identified problem is the excess of plastic waste among mixed municipal waste. The fact that it is not separated at source, which is evidenced by sub-optimal levels among selective waste collection, makes it impossible to be recovered. By being collected among mixed waste it cannot be valued and it inevitably ends up in the landfill.

The solution is based on three vectors: development and implementation of plastic waste recovery measures; design and implementation of strategies to raise the community's awareness and improve the separation of plastic waste; construction and

implementation of an integrated and participatory management model with stakeholders in the territory, to implement a Circular Economy Model that allows self-sustainability (economic and environmental) of the Alentejo Central's integrated system of waste collection and treatment, also allowing to fund research and support to the installation of companies related to green economy, and to implement some measures of social integration.

This solution is innovative and original because it is based on the implementation of a strategy whose approach is holistic, in low density areas with polynuclear urban centers. This integrated approach has never been tested.

This project is seen as a test phase to determine the best solutions that might change the paradigm. It is intended to endure, to be sustainable and to improve environmental quality and economic growth, being, at the same time, capable to transform mentalities.

Even in the countries with the highest recycling rates in Europe and the world, such as Germany and Austria, we find that the recycling rate has been persistently between 60% and 65% for several years. This is due to the fact that from recycling rates of this magnitude, costs rise strongly and the quality of the recycled materials decreases markedly, making it impracticable to extend recycling beyond these values. Thus, the remaining UW (urban waste) is redirected for EC (Energy Recovery), and only the non-combustible or otherwise recoverable fraction of the UW is deposited in landfills, whose goal, defined in the scope of Circular Economy, is 10% maximum in 2030.

In Portugal, in 2014, according to the National Statistics Institute, the percentage of urban waste selectively collected was 14%, 11% for the Alentejo. There is, thus, a huge recycling potential to be exploited by promoting the awareness of the population and organizations to the separation of waste, as producers, and to sustainable consumption, as consumers.

It should be noted that it is increasingly difficult to send plastic (packaging) for recycling given the number of contaminants (other plastics and non-plastics), which makes incineration or disposal in landfills the most appropriate solutions.

With this project, CIMAC intends to respond to a set of complementary challenges, common to several cities and their respective urban waste management systems,

namely: a) excessive presence of contaminants, especially plastic, in Urban Waste (UW) which are subject to undifferentiated collection, compromising the quality of the compost obtained from mechanical separation in the Biological Mechanical Treatment Unit (BMTU) of Biodegradable Urban Waste (BUW), forcing additional and more costly procedures in the processing/recovery; b) deposition in landfill of the inorganic component BMTU's waste (mainly plastic), which is not recovered. It is urgent to find a solution for BMTU's waste, which is about 50% of all UW entering this unit, other than its disposal in the landfill – a solution that goes against the 2030 guidance. Given the current difficulty in using Refuse Derived Fuel (RDF) as secondary fuel associated with energy recovery, it is not possible to promote the recovery of this waste, closing the material and energy cycle; c) sub-optimal levels of quantity and quality of the selectively collected UW are continuously found in flows already subject to dedicated collection circuits (plastic, metal, glass and paper); (d) low awareness of waste producers concerning the potential associated with its reduction at source, and the environmental and economic benefits associated with the separation of waste. In addition, it is vital to improve the environmental awareness of final consumers by contributing to sustainable, conscious and responsible consumption; e) optimize selective collection circuits in urban areas of low population density.

Proposed Solution

Our proposal aims to create a participative/integrated plastic waste (PW) Circular Economy (CE) strategy in Central Alentejo. Given the problem's scale, it is vital to implement an awareness-raising strategy towards an environmental mindset shift, involving local communities, schools, government, public and private institutions. It is also crucial to promote efficient PW reuse/recovery, and improve the regional PW management system's efficiency. Lastly, it is vital to find new technical solutions for the recovery/reuse of PW.

One key feature of our strategy is the participation (ex-ante) and involvement (during and ex-post) of local communities. It ensures the generation of both environmental and

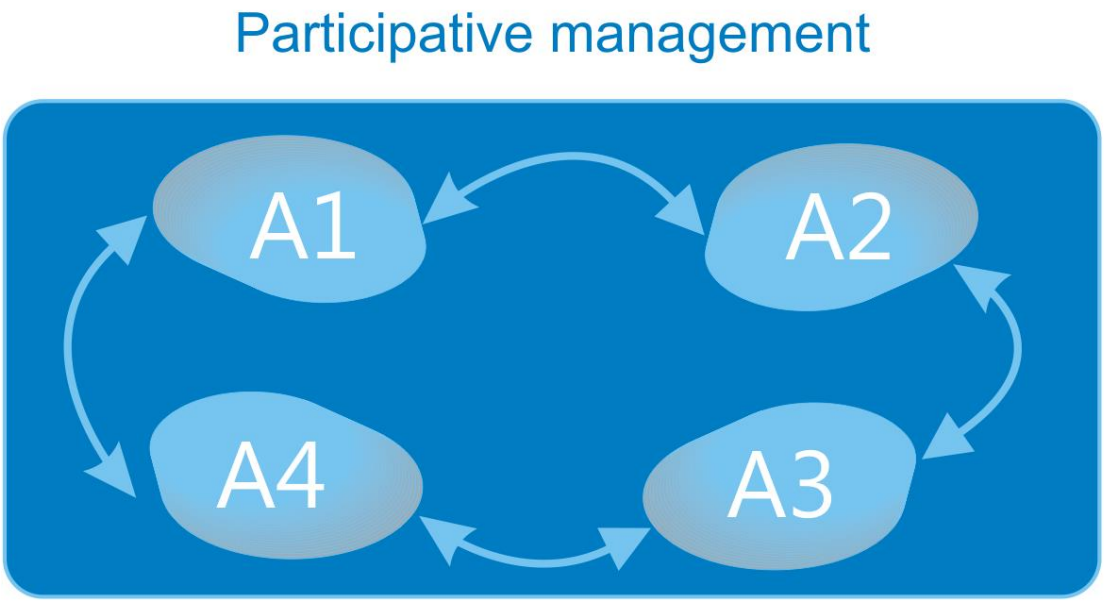
financial gains, which will permanently and sustainably change the current plastic cycle model for a new paradigm based on CE. The project's design is based on a sequential organization [order] of activities that incorporates the needed steps to achieve the proposed aims.

Activity A4.1 aims to design and implement community awareness and involvement strategies to increase PW separation, reuse and recycling, through schools, neighborhood communities, public and private entities. Indeed, only by involving specific target audiences, from children to policy makers, can we have a broad and lasting change in values and behavior. We will assess the way our communication's strategy is led and its effectiveness, so we can promptly adapt it.

A4.2 will develop and implement new technical solutions to transform the high amount of undifferentiated plastic arriving at Gesamb into added-value material, such as Activated Carbons (ACs). ACs can be used to remove pollutants from gas flows or waste waters. The spent ACs can be regenerated and reintroduced into the system as a way to complete the circularity of the economy. We will also open new lines of scientific research to test new solutions, and to implement and design actions to potentiate the reuse of plastic, avoiding, thus, that it reaches the waste status.

A4.3 aims to improve the regional PW management system, enabling the increase of the quantity and quality of recyclable PW collected, along with the rationalization of the regional system. Currently, there's a high potential of recyclable plastic which is still being sent to mixed waste containers. This solution involves the provision of a dedicated collection service, close to the main centers of commerce and services; the acquisition of electric vehicles; and the acquisition of "Ecological Islands", to reinforce and make the existing ecopoints network universally available.

Closing the circle, A4.4 aims to create an environmental fund, through the design and implementation of an integrated and participatory management model involving various stakeholders. Particularly, we seek to create proper conditions to implement an efficient waste plastic collection and recovery system, based on a self-sustaining CE model. This fund will also support future research and the implementation of incentives for investment to companies adopting CE principles.



Innovativeness of the Proposed Solution

Although the problem of more efficient management of urban waste, and plastic in particular, is a common challenge in all urban areas throughout Europe [7], and although there is already a diverse set of proposals for this problem's mitigation, the solution we propose to test is strongly innovative. Innovative given the integrated and incremental approach that it adopts in the construction of the solution, but also because it appeals to the participation of inhabitants, who shall be compelled to validate and to implement concrete actions daily.

Innovative also because it integrates technology as a support for innovation and not only as generator of novelty, because it transfers knowledge to citizens, companies and bodies of political decision, going beyond the mere generation of scientific research in the university.

An example of this innovative character was the creation of an automatic newsletter which allowed us, in the preparation of the project, to disseminate 375 articles focused

on the project's subject, aiming to assess the degree of innovation of the proposal we hereby present.

We may also refer the tool to support the technical and political decision, which is suggested for the project's monitoring and UW management.

The production of ACs from synthetic polymers and also from natural and renewable sources separately is well known [6] but the use of solid urban waste, predominantly use plastic, partially contaminated with multi-components as fillers, dyes, metals, paper, and others, was never systematically studied. The bibliographic research shows that only a few experiments were made at a laboratory scale [3, 4], not representative on this complex field, and further steps have not been taken. We can also quote the patent US6558644 B1 that claims the "Process for preparing activated carbon from urban waste" [5] using waste that is first stored to remove foreign materials and activated with steam, a different process of what we are proposing here.

The innovativeness of the proposed solution relies upon the systematic study to use plastic waste as a precursor for the ACs production by carbon dioxide, steam and air activation at a laboratory and semi-industrial scale. The adsorbents that will be produced can have various applications, such as the waste water or combustion gases treatment. In future, the conversion of urban plastic waste into ACs could be extended to an industrial level. Initially, the pilot will be implemented and tested in Gesamb, but, in the future, it could be scaled up to other UW treatment factories in the region, country or world.

Also, currently, the degradation of plastic recurring to biological agents is emerging. The biodegradation is cheaper than other methods, being environmental friendly although taking more time. Several authors are working with different kind of plastics (biodegradable or non-biodegradable) using bacteria, fungi and insects [1-3]. These studies are preliminary and use only a particular type of plastic. Therefore, further research is need. The innovation of this proposal in terms of research is to study the degradation of various types of plastics using existing biological species in the Central Alentejo area and to optimize the process taking into account the real environmental conditions of the region. To ensure optimization of plastic degradation more than one

biodegradation process will be used. Preliminary studies of biological degradation using GESAMB plastic waste will be performed.

The innovation comes also by linking two issues that play a central role in Circular Economy: waste management and the change in consumption and production patterns/habits. In line with the main EU strategic guidelines for Circular Economy we propose to carry out the necessary research in order to develop a system of economic incentives in order to improve the efficiency of the waste management system, and particularly selective collection. Finally, it is of crucial relevance to involve local policy makers, particularly by stimulating the inclusion of the circular economy principles in their policy agendas.

Finally bearing in mind the complexity of our goals and the number of partners, and their different levels of commitment, it was also decided that the follow-up of the project's execution should be ruled by a transparent and participatory approach, involving relevant agents and stakeholders as well as civil society, in order to ensure a high level of involvement, acceptance and support.

Thus, through a balanced mix of proposed solutions ranging from upgrading pre-existing methodologies to the implementation and testing of brand new solutions, the project's approach can be considered both evolutionary and revolutionary.

Potential obstacles and resistance

Scarce culture of environmental concern among people of working age and opinion makers: design of a shared strategy of environmental communication

Apparent environmental preservation which has prevented political decision-makers from becoming aware of less obvious threats such as the production/reuse of plastic: a governance model, signaling of environmental and financial costs and management solutions.

Low capacity for attracting/retaining critical mass: creation of research grants at the University of Évora and provision of seed capital for entrepreneurs.

Population pattern that hinders the obtainment of scale effects in the shared management of equipment for waste collection and treatment: plastic free strategy common to AC Municipalities; (gradual) replacement of fleets by electric vehicles.

Appropriate legal regulations, but difficult to operationalize and supervise: survey and dissemination of good practices; training actions for target audiences.

Heterogeneity of the RSU, which can impact negatively on the quality of the produced ACs and on the RSU's capacity to be condensed into a more suitable format to be used on the pilot installation: to overcome this obstacle we will begin with a significant amount of RSU that will be progressively purified. Another method to be used is the mixing of different batches of the produced ACs. If needed be we will use a small amount of a binder to produce the RSU monoliths.

It is important to understand that the process of biodegradation is not 100% efficient. The complete degradation of plastics by microorganisms is not yet achieved. Another potential obstacle is the possible toxicity of the final products. It is also important to remind the unpredictability when using biological material in laboratory research.

Partnership

This project is based on a partnership that involves CIMAC, as an urban authority, whose intervention area is the region of Alentejo Central (NUTIII), and which represents 14 municipalities and 68 parishes, thus allowing to involve a set of low density areas that face very specific urban problems, and a set of delivery partners that, due to their nature, may enhance the quality of this proposal, as well as its implementation and the maximization of results.

The partners are complementary in several areas and have a very relevant accumulated experience, combined with highly prepared technical teams, which allows us to widen

the conceptual, thematic and sectorial scope of the project. In fact, taking into account the fields of action of each partner, the project involves the most suitable local entities to deal with the problem in question.

In addition, the wider group of stakeholders has been designed to include representatives from almost the entire territory, thus enabling the design of the project, its implementation, scope and diversity of agents involved / committed to the solution.

The Alentejo Central Plastic Free Project arose from the identification of the problem by the Urban Authority, CIMAC, whose 1st approach was to discuss the issue with a group of partners working in the territory directly in this field. Hence, CIMAC promoted a series of meetings (30) with ADRAL, GESAMB and Évora University, where it was possible to define a 1st approach to be developed with the involvement of APPACDM and NERE, both Partners.

Aware of the existence of a weak culture of cooperation in the territory, a cooperation that is not promoted towards solid politically and hierarchically sanctioned objectives, we sought a double approach for the stakeholders' involvement.

The 1st step was to guarantee the political cooperation of the municipalities under CIMAC's association, presenting the project to their mayors and requesting contributions to define the activities. This was a welcomed action at the level of decision makers, but found little reflection in the suggestion of concrete actions beyond those the partnership had already proposed.

Complementarily, CIMAC summoned 20 public and private entities whose mission, in the partners' eyes, proved itself as a determining factor for the correct implementation and dissemination of the project's actions. The level of response was only 20% although the entities that answered affirmatively (INE:National Institute of Statistics; PSP:Public Security Police; DESGESTe:Regional Directorate of Education; DRCALEN:Regional Directorate of Culture; and the Bar Association) allow us to avow that the proposed actions have been validated and considered pertinent, assuring a satisfactory level of extension to the community.

However, given the level of response, partners considered that the involvement of the stakeholders should be affirmed as a critical point for the initiative's success, and thus included, in the strategy, actions dedicated to the promotion of this involvement/commitment of entities in the achievement of our aims.

As will be seen from the reading of the activities proposed below, the level of success obtained in the search for a Free Plastic territory will depend to a large extent on the level of community involvement and its effective participation in the designed activities. Thus, in addition to the communication and dissemination activities that would have to be designed, our project management model includes the planning of forums and platforms that allow us to collect and enhance contributions from the broader partnership, integrating their participation in the validation of solutions and proposals for public policies that may result from the initiative. Extending the set of 3rd level partner entities thus materializes one of the proposed implementation activities. As already mentioned, the involvement of agents whose mission reveals itself as a decisive contribution to the success of the initiative has been taken into account, namely DesGesTe, which should allow the implementation of different activities in every school of the territory at different levels of education (except universities), as well as to ensure the mobilization of educators towards the project's objectives; DRCALEN – Alentejo is a territory of low population and business density but it holds a set of material and immaterial heritage that is quite relevant both in terms of identity and as a resource for one of the basic sectors of our economy:Tourism. The involvement of this entity seems essential to the proposal and monitoring of public policies in this field; INE, whose participation may ensure not only monitoring but the technical validation of the indices and indicators that can be built to monitor not only the project but also the use/reuse of the plastic in the territory. Finally, the activities which were conceived to involve these stakeholders should allow us to aggregate critical mass for the commitment and support to the implementation of all the project's activities, as described in each of them.

To offset the low level of stakeholders involvement, low participation in public policies definition, resistance to innovation, poor cooperation between public and private entities and between the latter and the business fabric, poor transfer/appropriation of R&D to/by the community, we aim to hold 14 workshops each year of the project, ensuring a full

territorial/thematic coverage of the project actions. Their planning should be annual and based on the mapping of the agents that through their mission can generate value/benefit from the solutions proposed by the project. Lastly, we aim to provide a collaborative platform to the entities involved, allowing to disseminate relevant information and to create thematic discussion forums.

Target Groups

One of the main objectives of this project is the transformation of mentalities and behavior towards the topic in question, which will only be effective if based on a vertical and horizontal approach to the different audiences of the territory. In practice, this means that, generically, our target audience is composed of the inhabitants (157,746 in 2015) (source, National Institute of Statistics) and entities of Central Alentejo. The vertical approach, on the one hand, will allow us to integrate the various decision levels, from the municipal decision to the decision-making process of each individual citizen. The horizontal approach will allow us to reach all sectors of society: professional, social, age range, etc. Thus, in addition to general actions, we will have actions dedicated to each of the sub-groups of the aforementioned universe.

In this sense, we will develop specific communication and awareness-raising approaches for policy-makers and institutional decision-makers, both in the public sector and in the private sector, namely: Municipalities, Parishes, Regional Directorates, Public Organizations, Foundations, NGOs and companies. At the same time, we will also develop actions dedicated to different professionals in the territory, both from the public and from the private sector.

The accounting of these target segments will be carried out in a Monitoring Plan, since there is no data in the regional statistical system that allows this accounting to be checked.

We will also develop specific communication and awareness-raising actions for all levels of education, from kindergarten to university teaching, just as we will develop actions

dedicated to the general population, making use, for example, of neighborhood associations and wider spectrum campaigns. It is estimated that in AC there are about 24,600 students in non-university teaching and about 5,400 in higher education.

Integrated Approach

Although the project's 1st aim is to avoid plastic waste's deposit in landfills, it might also be a matrix solution for other types of waste and capable of solving other problems of contemporary cities.

The project's design, based on the concept of circular economy and on a strong partnership, is meant to approach several dimensions of urban life, such as: jobs and skills in the local economy through the creation of (1) a support instrument for the setting up of companies and (2) scientific research grants linked to green economy. It will also work on solutions under the scope of social economy, inclusion and fight against poverty.

By reducing plastic waste's deposit in landfills, it will contribute to the sustainable use of land and nature-based solutions. The installation of lighting solutions in GESAMB, using renewable energy or energy efficiency, will allow us to place the territory on a more consistent path towards effective energy transition. Also, the urban waste collection fleet will be gradually replaced by electric vehicles, helping to underpin sustainable urban mobility strategies which, combined with solutions that avoid the burning of plastic waste, will contribute to sustainable improvement of air quality.

Monitoring and network management activities will enable a digital transition, and the development of a manual of good practices will contribute to innovative and responsible public procurement.

We aim that awareness-raising activities, coupled with truly integrated and shared management, might deeply transform behavior and mentality. The whole territory will thus be better prepared to adapt to climate change and to mitigate its effect.

Management and Monitorization Model

The WP Project Management will be ensured by two partners: CIMAC, as an urban authority responsible for daily management and coordination and for the capitalization activity, and ADRAL, which will fuel the partnership and monitor the project and its impact on the territory.

Bearing in mind the project's complexity and the number of partners, and their different levels of commitment, it was also decided that the follow-up of the project's execution should be ruled by a transparent and participatory approach, involving relevant agents and stakeholders as well as civil society, to ensure a high level of involvement, acceptance and support.

We have defined a governance model based on the following support structures:

Management Group (General Coordination by CIMAC+delivery partners) which takes up the functions: general management, monitoring, risk and quality management, capitalization and institutional communication.

Monitoring Committee (General Coordination by ADRAL+wider group of stakeholders), whose main function is to generate inputs in the scope of the different phases of project implementation that allows us to assess its suitability in the territory and to monitor the impacts generated by the intervention. This Commission should make it possible to assess, among the different target audiences, the suitability of the proposed solutions, and the collect suggestions for continuous improvement thru its development. MC should also be involved in the Capitalization activity.

Coordination tasks:

- Coordination of the Project Management Group (CIMAC+delivery partners):general management tasks, implementation of the actions proposed in the application

- Convening and directing partnership meetings and results communication Preparation of physical & financial execution reports
- Assessment of monitoring reports, introduction of continuous improvement mechanisms
- Management of project risks and promotion of quality standards in the execution of tasks and external communication
- Internal & institutional communication with UIA Management Authority and Experts
- Management Group (General Coordination by CIMAC+delivery partners): general management, monitoring, risk and quality management, capitalization and institutional communication

Since the elaboration of the Monitoring Plan (MP) will be one of the project's activities, this is a mere approximation which has been discussed among the partners during the preparation phase.

The project's goals derive from this reflection and from the nature of the intervention, as does the definition of some of the project's activities and acquisition of materials, to be carried out by ADRAL (see Big Data Analytics Monitoring / Open Data and Urban Operational Monitoring Platform). We suggest the establishment of innovative monitoring tools capable not only of measuring the level of attainment of the project goals but also their impact on the territory of implementation.

The technical control of implementation of the project activities is considered a general goal, allowing simultaneously to analyze external and internal coherence, to assess the activities' effectiveness, efficiency and impact, and to elaborate proposals for continuous improvement or even to revise its implementation strategy in order to fully achieve the objectives initially proposed.

Ensuring that all project design is supported by an incremental logic, considering the complexity of the indicators to be monitored, the MP should foresee the construction

of indexes and tools to measure the environmental and communication impact. Hence, the methodology should follow the following phases:

Definition of Monitoring Indicators, Tools and Timeframe; Establishment of the Starting Point (the analysis to be carried out should allow for a quantitative and qualitative approach); Data collection and preparation of Semiannual Reports – In addition to Monitoring these reports should incorporate suggestions for continuous improvement to be presented to the partnership, as well as the contributions collected from public participation and 3rd level partnership.

The MP must be implemented 60 days after the project's approval, establishing a limit for the starting point (1st data analysis) 90 days after this date.

This activity combines the preparation and implementation of the Project Monitoring Plan with the general objective of establishing a set of mechanisms that allow the technical control of the project activities' implementation, the analysis of its external and internal coherence, its effectiveness, efficiency and impact of the activities, as well as the elaboration of proposals for continuous improvement or even revision of its implementation strategy to fully achieve the objectives initially proposed.

As explained in Monitoring Methodology, we propose to prepare a total of 5 semiannual evaluation reports and a Final Monitoring Report.

Communication Strategy

Taking into account the specificity of the project and its mission, the external communication of its objectives, proposals and results is of particular relevance, considering two fundamental dimensions:

1. Institutional: Dissemination of relevant technical information about project implementation, work sessions, conferences, events and results to the different target audience segments. The internal institutional communication and the communication

with the Management Authority will be assumed in WP Management by CIMAC, as Urban Authority.

2. Participative: Communication on the channels of public participation, dissemination of non-technical information about the project and actions contained therein, alert and awareness of Central Alentejo population to the problem of plastic waste. In this case, target segments are the inhabitants of the territory with a special focus on the school population due to its ability to mobilize the remaining age groups.

All communication actions will be integrated in the Project Communication Plan. Taking into account the focused subject, digital media and recyclable or recycled materials should be a priority, in an attempt to maintain a socially and environmentally responsible attitude.

Specific objectives of the Communication Plan:

- Inform, in a continuous/sustained manner, target audiences of the aims/advantages of the project's implementation;
- Ensure consistent/permanent dissemination of the entire implementation process of Project Actions
- Evaluate expectations of different target audiences by keeping them informed/integrated
- Encourage public participation by recognizing the importance of collecting and integrating citizens contributions
- Permanently monitor the news transmitted by the media.
- Notwithstanding the segmentation that the Communication Plan might carry out, these are considered relevant target groups: inhabitants of urban areas in intervention, school population, Mayor and employees of the Municipalities, Presidents and employees of the Parish Councils, formal and non-formal Organizations, companies, commerce, HORECA sector, Opinion Makers.

Link with other local/regional/national strategies and policies

The proposed project is based on the main public policy instruments existing in Portugal and the EU in the field of Urban Waste Management and Environment, with particular emphasis on the Strategic Plan for Urban Waste (PERSU 2020).

This strategy considers UW as an important resource, and includes a set of different measures that enhance the hierarchy of waste and contribute to circular economy, facing waste as a resource that can be recovered and reintroduced into the economy, thus contributing to established targets related to waste preparation for reuse and recycling, packaging recycling and reduction of UW destined to landfills.

PERSU further enhances Citizenship and Responsible Waste Management as a determining factor for waste management. It especially emphasizes activities that, through education and awareness, promote the reduction of waste production, as well as a selective disposal of waste. The idea is to place Portugal on the path of compliance with a number of targets, through the involvement of citizens and companies. These targets include the reduction of waste production per capita, the increase of recycling and the decrease of landfill disposal. Finally, it considers that municipalities should be the most relevant public entities to introduce significant changes in urban waste management.

As will be perceived, these are also the main vectors of intervention in this project.

Synergies with other projects and initiatives

The project has been designed as part of a larger strategy for the territory and, for that reason, it had to incorporate lessons drawn and levered through an integrated interaction with the preexisting Policy Instruments. In more detail, the Policy Instruments of more relevance to this project are: the Territorial Pact for Cohesion and Development (PDCT); the Integrated Strategy for Territorial Development (EIDT); the Strategic Plans for Sustainable Urban Development (PEDUS); the Regional Action Plan for Sustainable Urban Mobility (PAMUS); the National Strategy for Climate Change Adaptation (ENAAC); Intermunicipal Plan for Climate Adaptation in Central Alentejo (PIAAC – AC); the Geographical Information System of support to the adaptation to Climate Changes and Operation Management (SIG – GO); The Covenant of Mayors for Climate and Energy.

Although the project we now present is complementary at a strategic level, it is innovative in its design, its approach and in the way it will interact and increase the impacts of the above mentioned Policy Instruments. As a matter of fact, our project seeks to find the answer for problems defined but not tackled by those Policy Instruments, becoming a catalyst of the implementation of solutions and results. Effectively, having been designed as a holistic approach to the territory, “What Shall We do With Plastic – AC Plastic Free” wishes to be a landmark for the future of regional Policy Making.

Scaling up and Transferability of the project

The project aims to lay the foundations for a long-term strategy in the territory and, thus, we hope that it may have a life cycle extending beyond the initial period of three years. This initial period is assumed as a launch and test phase, which allows us to determine the best solutions to be developed towards a paradigm shift that is intended to be lasting, sustainable and conducive to an improvement in environmental quality, economic growth and, simultaneously, an agent of mentalities' transformation. The aim is to generate, in addition to environmental gains, financial gains that, if managed in a participatory and sustainable manner by the community, could support a lasting change in the paradigm of Green Economy in the territory. Circularity is assumed as a matrix approach, and in order to maximize future sustainability, the "fund" should be able to: finance the installation of a network of environmental islands to cover the whole of Central Alentejo and, subsequently, to maintain it; replace all the fleet of waste collection vehicles in Central Alentejo by electric vehicles and, later, to ensure their maintenance and/or replacement by more recent technology; finance awareness-raising campaigns leading to a sustainable change in habits (at institutional and citizen level); create research grants that foster innovation over time and that contribute to the positioning of the territory at the forefront of scientific research in this field. Research should focus on new technologies/materials /products, and on the optimization of procedures and management and monitoring mechanisms; the creation of a financing mechanism linked, for instance, to the concept of seed capital, in order to support the setting up of companies whose area of activity falls within the scope of the circular economy, in the territory. We also hope that innovation processes resulting from this scientific research might be converted into an industrial scale.

Nowadays, waste management is one of the major challenges faced by mankind. We believe only an effective, thorough and integrated (public and civil entities, citizens, …) response could be the solution to this problem.

TMB waste management is a hot topic, not only because it´s necessary to find a solution for the current generated amount, but also to avoid the increase in its production. Currently, in the Alentejo Central region but also throughout Portugal and all over Europe, TMB waste is mostly transferred into energy valorisation by incineration or deposited in landfills. This leads to a drastic reduction in the lifespan of landfills, the payment of taxes and other problems, which create the need for developing and implementing innovative and integrated solutions.

The project can be transferred and replicated by other urban authorities because all the necessary and sufficient conditions are easily replicated anywhere, with, of course, the regular adaptions to meet any specific characteristics of each territory. As a matter of fact, what we propose is a path that can be followed by any city, regardless of the local circular economy state of the art. Of course there will always be the need for some funding to support the launching activities, but, after those needs are met, then, if correctly steered, the solution can be replicated until self-sustainability is achieved.

The mechanism that can facilitate the transfer of these practices is the participation in capitalization projects, such as URBACT or INTERREG and UDN for each specific theme of the European Urban Agenda. We also intend to participate in international congresses and to publish papers in scientific publications around the world. All the relevant information will also be available on-line. The Project's Communication Plan will also contribute to disseminate experiences, activities and results.

Compilation of the project results and of the challenges overcome during its implementation, together with a set of recommendations for the economic recovery of UW and more efficient UW management in a low density urban environment, in digital format, easily perceivable and appropriable by the different segments of the target population.

Work sessions with the following target audience segments:

- Mayors from the 14 involved municipalities: UW public management, with emphasis on plastic, and environmental sustainability;

- Promoters of public policies and incentive systems for green economy: Plastic as a valuable resource and generator of value
- Academic Community: Results of research and industrial scalability

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