Regional guidebook on circular procurement

PORTUGAL

2020

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CircPro Interreg Europe

European Union
European Regional Development Fund

This guidebook was prepared by CCDR Alentejo under Interreg Europe programme project Smart Circular Procurement (CircPro). The Smart Circular Procurement (CircPro) project receives financial support from the European Union (Interreg Europe / ERDF). This publication reflects the author's views only and the Interreg Europe programme authorities are not liable for any use that may be made of the information contained therein.

Contents

INTRODUCTION

The CIRCPRO - Smart Circular Procurement Project

Public procurement accounts for a large proportion of European consumption (nearly 20% of EU GDP). Public procurement has a major role in the transition towards a Circular Economy. It is important to make the right choices early on in the product creation process, so that materials and components are suitable, at end-of-life, for repair or refurbishment and re-use, thus helping to close the materials loop.

Project CircPro aims to promote the transition to a more Circular Economy related national and regional decision making, by increasing the implementation of the Circular Procurement. There is no official definition yet, but "Circular Public Procurement in the Nordic Countries" (CIPRON) study suggests that Circular Procurement (CP) is a procurement of competitively priced products, services or systems that satisfy the customer needs and lead to extended lifespan, value retention and/or remarkably improved and non-risky cycling of biological or technical materials, compared to other solutions for a similar purpose in the market.

CP as a process is expected to provide conditions and criteria that will stimulate energy and material savings and close material loops, spread innovative solutions and create markets for clean solutions.

The main existing barriers regarding implementation of the CP identified by the partnership are:

- general lack of knowledge and expertise;
- procedural and legal barriers;
- procurers´ preconceptions about using products which are made of recycled materials, as well as lack of them.

12 partners from 10 EU regions and Norway are tackling these challenges by:

- identifying pilots and initiatives, main actors, organisations and networks that could promote the implementation of CP;
- identifying main legal and procedural challenges;
- providing a meeting place and enhancing a dialogue between procurers and suppliers (both groups are represented in the partnership and stakeholders´ groups).[1]

[1] *Source: CircPro Application form*

The Regional Guidebook

The aim of this guidebook is to raise awareness of regional stakeholders on the emerging needs of circular procurement application, recent trends and developments; to analyse the obstacles faced by procurers while implementing circular procurement in their entities; and to provide tools and suggestions on how to implement the CP in an effective and efficient way in the future, also by boosting the involvement and participation of regional companies in the circular procurement process. This latter outcome will be achieved by an ad-hoc project tool, the "Joint Method for involving companies in the circular procurement process", that is outside the scope of the present document.

This guidebook is developed within the framework of CircPro project, that aims at promoting the transition to a more circular economy related national and regional decision-making, by increasing the implementation of the circular procurement.

Main barriers that hinder the systematic implementation of the circular procurement are general lack of knowledge and expertise, procedural and legal barriers, and procurers´ preconceptions about using, as well as lack of, recycled materials. CircPro tackles the challenge to analyse whether Circular Economy (CE) principles and Circular Procurement (CP) criteria could be included into the regional Policy Instruments as a general principle or as an award criterion to encourage applicants to systematically implement CP.

The project also focuses on exchange of experience within and between regions, at regional level by interacting with key stakeholders (procurers, suppliers, academia, decision-makers and other valid parties) in regional stakeholders' groups, and at interregional level by organizing interregional stakeholders' meetings for fostering the interregional learning.

One of the main project outputs is the development of 10 Regional Guidebooks including region-specific overviews and supporting material for the regional decision-makers, procurers and suppliers on circular procurement procedures and practices. These 10 Regional Guidebooks are provided into the national languages in order to create the basis for further dissemination of CircPro activities implementation and incorporate the strategic level to establish practices and policies within the context of municipalities´ and towns' procurement processes.

1. CIRCULAR PROCUREMENT AS AN EMERGING CONCEPT IN EU

1.1. Circular Economy concept and political framework in EU

For a long time, our economy has been 'linear'. This means that raw materials were used to make a product, and after any waste (e.g. packaging) was thrown away. In an economy based on recycling, materials are reused. For example, waste glass is used to make new glass and waste paper is used to make new paper. To ensure that in the future there are enough raw materials for food, shelter, heating and other needs, our economy must become circular. That means preventing waste by making products and materials more efficiently and reusing them. If new raw materials are needed, they must be obtained sustainably so that the natural and human environment is not damaged.

In a circular economy, manufacturers design products to be reusable. For example, electrical devices are designed in such a way that they are easier to repair; products and raw materials are also reused as much as possible. In a circular economy, we treat the environment responsibly.

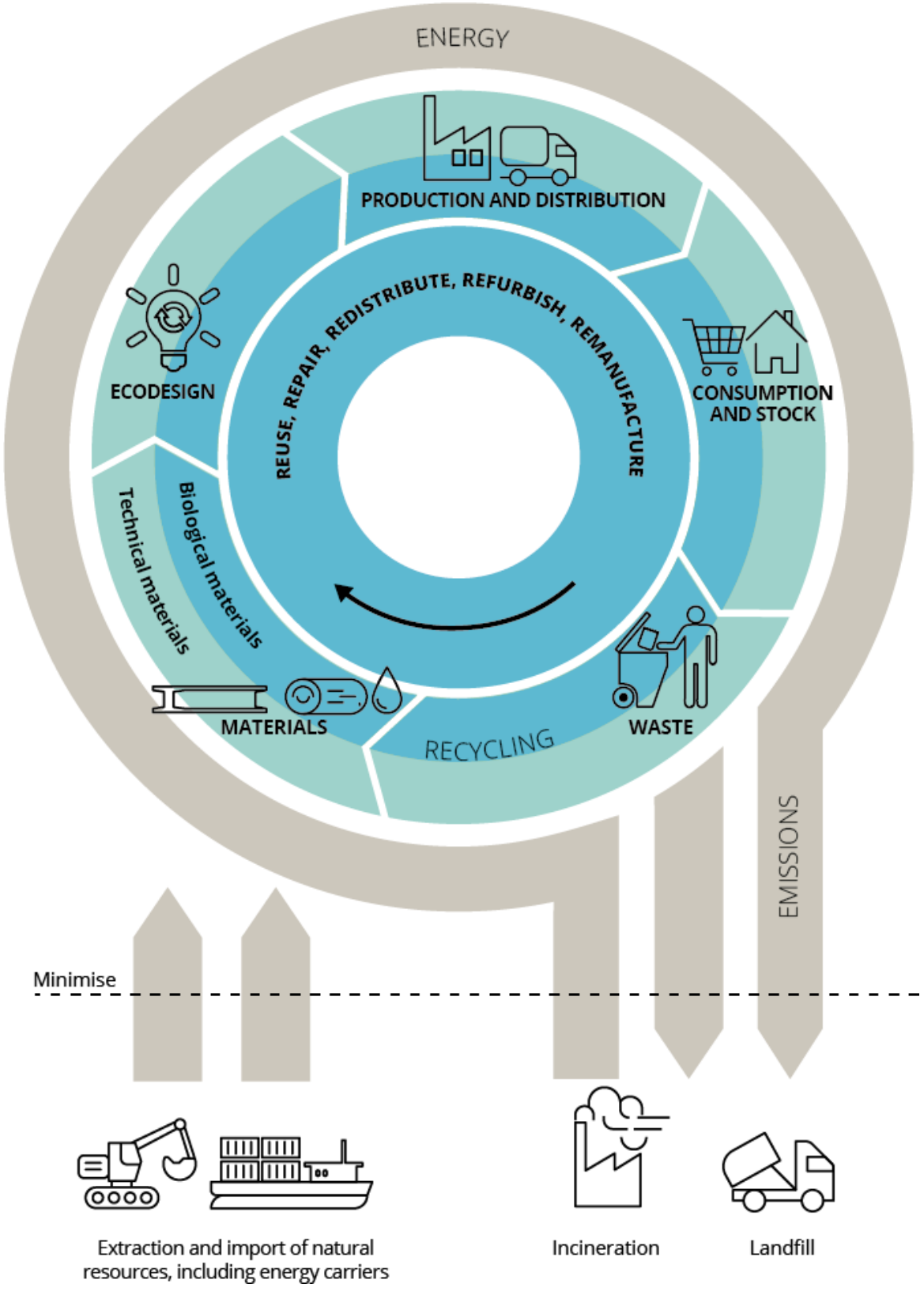

Figure 1: Circular Economy System Diagram. (Source: https://www.eea.europa.eu/soer/2020/soer-2020-visuals/circular-economy-system-diagram/view).

The circular economy is a production and consumption model that involves sharing, lending, reusing, repairing, reconditioning and recycling existing products and materials for as long as possible.

There is an increase in demand for raw materials and at the same time a scarcity of resources: many of the raw materials and essential resources for the economy are limited, but the world population continues to grow and consequently the demand for such resources also increases.

This need for raw materials creates a dependence on other countries for instance some EU member states depend on countries from other continents.

The impacts on climate mustn´t be forgotten: the processes of extraction and use of raw materials produce a great impact on the environment and increase energy consumption and carbon dioxide (CO_2) emissions. A more rational use of raw materials can help reduce CO_2 emissions.

For these reasons, the transition to a circular economy is becoming increasingly necessary and urgent.

The transition to a more circular economy can bring numerous advantages, including:

- reduction of pressure on the environment;
- more security about the availability of raw materials;
- increased competitiveness;
- impetus for innovation and economic growth;
- increased employment.

With the circular economy, consumers will also be able to have more durable and innovative products enabling money savings and improving the quality of life.

Since 2010, the EU has set as one of the central objectives of its socio-economic development strategy the transition to a circular economy that uses natural resources efficiently, in which materials and resources are kept in the economy for as long as possible, through reuse and recycling, and in which the generation of waste is minimized. This challenge is not only an environmental issue but also an economic one, as the European Parliament pointed out in 2015. The European Commission estimates that circular economy policies can generate “a net economic benefit of a 1.8 trillion euros from here by 2030”, the “creation of more than one million new Jobs before 2030” and, in addition, a notable reduction in greenhouse gas emission.

The Circular Economy Action Plan (2015) aims to set the course for a “sustainable, low-carbon, efficient in the use of resources and competitive economy”, with the aim of “protecting companies against resources scarcity and volatility of prices, and contribute to creating new business opportunities, as well as innovative and more efficient ways of producing and consuming”. The Plan sets

green public procurement as a fundamental tool for integrating the requirements and objectives of the circular economy policy in the activity of contracting authorities.

Circular procurement is an approach that can be defined as the process by which private or public authorities purchase works, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimising, and in the best case avoiding, negative environmental impacts and waste creation across their whole life-cycle. As a concept it builds on Sustainable Procurement, adding elements such as closed-loop material use.

There are three types or 'levels' of models for implementing circular procurement:

- 'System level': concerns the contractual methods that the purchasing organisation can use to ensure circularity.
  (Product service system, Public Private Partnership, Cooperation with other organisations on sharing and reuse, rent /lease, supplier take-back systems including reuse, recycling, refurbishment and remanufacturing)
- 'Supplier level': how suppliers can build circularity into their own systems and processes, in order to ensure the products and services they offer meet circular procurement criteria.
  (Supplier take-back system, design to disassembly, reparability of standard products external reuse/sale of products and internal reuse of products)
- 'Product level': focused solely on the products that suppliers to public authorities may themselves procure further down the supply chain.
  (Materials in the product can be identified, products can be disassembled after use, recyclable materials, resource efficiency and total cost of ownership, and recycled materials)

Circularity criteria in public procurement also has a role to play in the pursuit of the goals set out in the 2030 Agenda for Sustainable Development, specifically Goal 12, which provides a specific target for promoting sustainable public procurement practices. Goals 11 and 13 are also adressed.

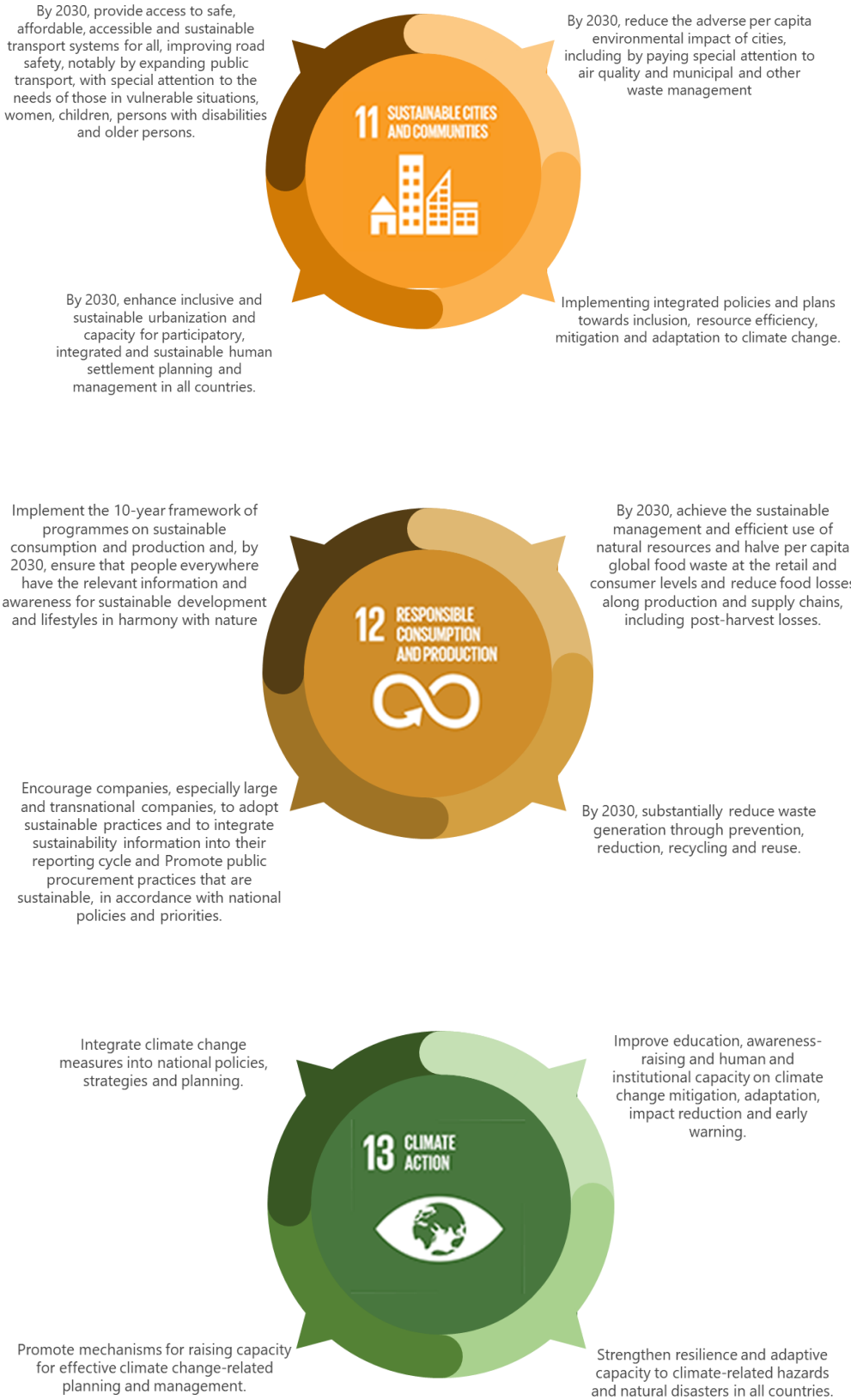

Figure 2: Sustainable Development Goals (related to Circular Procurement)

Circular procurement often requires a shift from technical specifications being set solely by the procurer, to a process where specifications are set following exchanges between potential suppliers and procurers. Such an approach provides an opportunity to share needs, gather information on goods and services available, and test viability of innovative award criterion. On a wider scale, engaging with suppliers can help coordinate 'circular activities' across relevant sectors.

"The circular concept promotes wealth and job creation in the context of resource constraints" *WEF, 2014, Towards the Circular Economy: Accelerating the scaleup across global supply chains.*

"The circular economy will boost the EU's competitiveness by protecting businesses from resource scarcity and price volatility, helping to create new business opportunities and innovative and more efficient ways of producing and consuming". *European Parliament 2015.*

1.2. The role of public procurement in EU circular economy transition

Circular procurement is an approach that recognizes the role that private and public authorities can play in supporting the transition towards a circular economy.

According to the European Commission, circular procurement as a specific approach to green public procurement can be defined as the process by which private or public authorities purchase work, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimizing, and in the best case avoiding, negative environmental impacts and waste creation across their whole life-cycle. As a concept it builds on Sustainable Procurement, adding elements such as closed-loop material use.

This more holistic approach is expected to create conditions that would stimulate energy and material savings, spread innovative solutions and create markets for clean solutions and hence lead to a circular economy.

Traditionally, in a procurement environment concerns have been focused on sourcing and purchasing new products to meet customer demands - however there is not always visibility of what happens to the products once they reach its end of life stage.

Circular procurement encourages procurement professionals to consider not just the Take – Make - Dispose, linear economy; it enables considerations on

how the lifespan of the product can be maximized through repair and reuse, and how products can be re-used or recycled once they reach their end of life stage, thus ensuring reducing consumption of finite resources.

By understanding how products are going to be disposed from the very beginning of the product cycle, the specification can be better positioned, by taking into account the products total life cycle costing.

EU supports the uptake of the new, green, innovative and circular procurement practices and this is highlighted in several EU strategic documents such as the Circular Economy Action Plan. The basic principle for circular procurement is to apply a full lifecycle approach as much as realistically possible and to consider aspects like reparability, reuse, remanufacturing, recycling and others while purchasing goods and services.

Some European regions are taking steps in this direction. As part of the environment and resource efficiency thematic objective, the Interreg Europe Programme provides support to improve policies for the up-take of innovative procurement approaches.

The EU Action Plan for the Circular Economy (2015) has established a concrete and ambitious programme of action which will help to ‘close the loop’ of product lifecycles. It proposes actions to keep resources in the economy and retain the value of these resources, which will contribute towards delivering a sustainable, low carbon, resource efficient and competitive economy. This plan recognizes public procurement as a key driver in the transition towards the circular economy, and it sets out several actions which the European Commission will take to facilitate the integration of circular economy principles in Green Public Procurement (GPP). These include emphasizing circular economy aspects in new or updated sets of EU GPP Criteria, supporting a higher uptake of GPP among European public bodies, and leading by example in its own procurement and in EU funding.

A circular economy will retain more high value materials in the economy, increase the resilience of companies and economies to external shocks, incentivize innovation and support local labour markets.

Public procurement can play a key role in transitioning to a circular economy. Including ‘circular principles’ into procurement practices can help public sector buyers to take a more holistic approach to sustainability - from the first stages of a procurement to the end of product life - while also achieving potential savings.

1.3. The European programs supporting the implementation of CP

The EU supports the uptake of the new, green, innovative and circular procurement practices and this is highlighted in several EU strategic documents such as the Circular Economy Action Plan. The basic principle for circular procurement is to apply a full lifecycle approach and to consider aspects like reparability, reuse, remanufacturing, recycling and others while purchasing goods and services.

The main goals of this kind of procedures are:

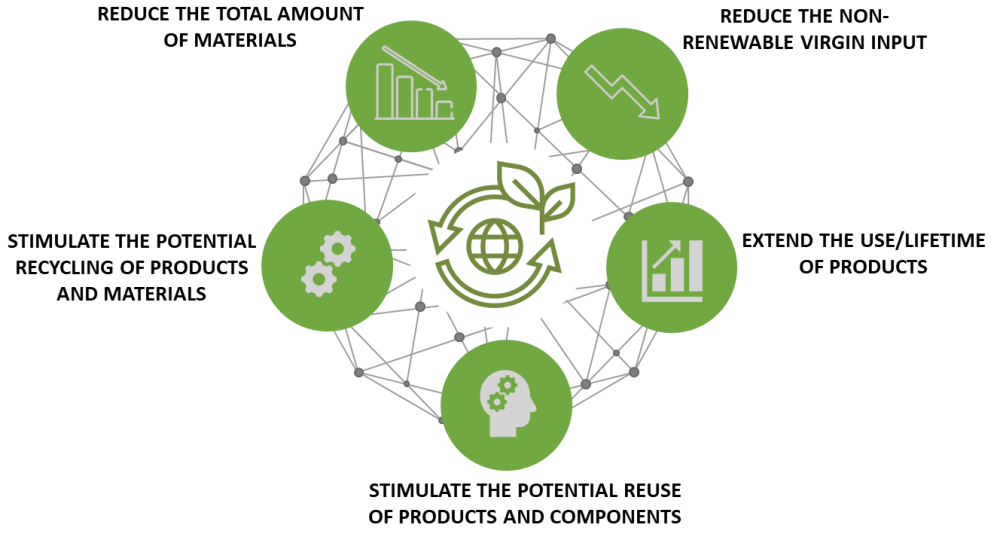

Figure 3: Circular Procurement Main Goals

The best approach for the latter is to start with a strategy or policy for greening the current procurement practices and encouraging circularity in purchasing decisions. This will help to apply environmental considerations from the very beginning of the procurement procedure and develop holistic understanding of environmental impacts and waste creation across the whole life-cycle of goods and services.

Regarding Circpro - Smart Circular Procurement, its main objective is to increase the implementation of circular procurement under the targeted policy instruments so that the circular economy principles and criteria are incorporated or taken into account as a horizontal principle. CircPro targets the circular procurement from different approaches that have different levels of complexity: all of which facilitate closed loops, but where the focus shifts from better quality products to new and innovative products and new business concepts.

Interregional cooperation promoted within Circpro, will enable tackling these challenges by:

- increasing partner regions' know-how on circular procurement and recycled materials;
- identifying, assessing, exchanging and disseminating the existing national/regional initiatives, good practices, supporting measures, pilots and initiatives, main actors, organizations and networks that could boost the implementation of the circular procurement in the regions;
- identifying the procedural and legal barriers experienced by procurers and suppliers when implementing procurements with circular elements;
- providing a meeting place and enhance dialogue between procurers and suppliers (both groups are represented in the partnership and stakeholders' groups);
- preparing regional Action Plans with specific proposals for improving the existing regional policies, programs or instruments with their local stakeholder groups.

1.4. Circular procurement and other related procurement concepts

As previously mentioned, circular procurement is an useful tool to increase the level of environmental sustainability inside the organizations such as public authorities and companies. In the most favourable conditions, it should enable supplying competitively priced products, services or systems that lead to extended lifespan, value retention and/or remarkably improved and non-risky cycling of biological or technical materials, compared to other solutions for a similar purpose in the market.

This is possible because circular procurement closes the loop by maintaining value and maximizing the cycling of products and raw materials; all this leads to the promotion of new business models related to circular economy.

When this happens and it is the time to put the theory in practice, three main barriers can hinder the systematic implementation of the circular procurement:

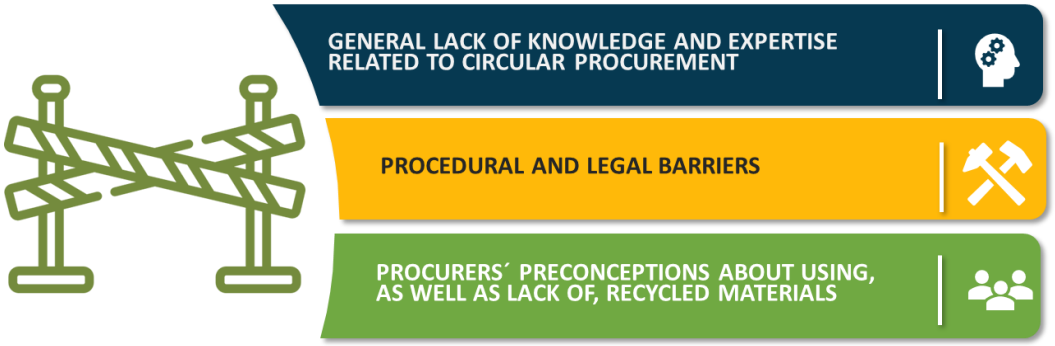

Figure 4: Circular Procurement Main Barriers

In order to avoid these barriers, procurement concepts are considered taking into consideration the models for implementing circular procurements and the circular procurement hierarchy.

Regarding the “the system level”: It concerns the contractual methods that the organization can use to ensure circularity: this ranges from supplier take-back agreements, where the supplier returns the product at the end of its life in order to re-use, remanufacture or recycle it, to product service systems, where the contract provides both services and products.

An example of a product service system is a printing contract using a pay-per-copy model, in which the supplier provides all equipment, repairs, replacements and training rather than simply selling copy machines and/or supplies.

Regarding the “the supplier level”: it describes how suppliers can build circularity into their own systems, in order to ensure the products and services they offer meet circular procurement criteria. For instance, once a product stops being useful for the consumer, the manufacturer can withdraw it, disassemble it, repair it if necessary, and use it for the sale of individual internal and external elements, increasing its added value without wasting other resources.

Finally, a third level is the one of the “products”, which is similar to the second one, but focuses more on the products that suppliers to public authorities may themselves procure further down the supply chain; it is important, indeed, when undertaking circular procurement that both the supplier systems and product technical specifications are considered.

The other procurement concept is called “circular procurement hierarchy”, which helps in prioritizing the potential actions. This is based on the European Waste Hierarchy: reduce, reuse, recycle and recover.

Figure 5: Circular Procurement Hierarchy

Sustainable Public Procurement (SPP) is the broadest concept. It is a procurement “process by which public authorities seek to achieve the appropriate balance between the three pillars of sustainable development - economic, social and environmental - when procuring goods, services or works at all stages of

the project". Economic aspect (especially saving financial resources) is an important goal of all public procurement, but sustainable procurement also takes into account both environmental and social aspects. For example, the procurement of catering services aims to reduce the environmental impact by asking for organic food and requiring waste (both packaging and food waste) prevention measures. In addition, social criterion require both fair trade food and the involvement of disabled and / or unemployed people.

Green public procurement (GPP) means that "public authorities seek to purchase goods, services and works with a reduced environmental impact throughout their life-cycle compared to goods, services and works with the same primary function which would otherwise be procured" . GPP is part of sustainable procurement, which only covers environmental aspects, but not social and / or societal aspects and criteria.

Circular procurement (CP) can be defined as the process by which public authorities purchase works, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimising, and in the best case avoiding, negative environmental impacts and waste creation across their entire life-cycle (Source: European Commission: Public Procurement for a Circular Economy, October 2017).

Circular public procurement initiatives can be seen as part of the green public procurement and/or sustainable procurement although having a clear focus on procuring of goods, services and systems that lead to extended lifespans, value retention and/or remarkably improved and non-risky cycling of biological and technical materials, compared to other solutions for a similar purpose in the market. As circular procurement is aimed at reducing environmental impact, all circular procurement is also green procurement- however not all green procurement is circular procurement. For example, those GPP which criteria are aimed at reducing noise or increasing biodiversity, are not directly circular. At the same time, it is difficult to draw a specific line, as different environmental criteria are often used in procurement and there is no clear definition of what exactly is a circular procurement - whether one criteria is enough or whether a broader circular approach is needed in the procurement process. However, as circular procurement is often not only for purchasing products, but may affect the whole product/service system or supply chain, it can therefore be aimed at procuring innovative solutions, which would make such processes innovation procurement.

As such, circular public procurement can significantly stimulate demand for products and services that are made according to circular economy principles and support the new and innovative circular business models and related networks. Therefore, the circular procurement can be seen as a strategic instrument that plays an important role in the transition towards circular economy.

Public Procurement for Innovation (PPI) allows the purchase of innovative, new and emerging products (or services), especially in areas such as information

technology, medical products or military equipment, among others. Innovation procurement can involve buying the process of innovation, or buying the outcomes of innovation. Innovation procurement thus contributes to the design of new products and services. Innovation procurement may overlap with circular, sustainable and green procurement. If the innovation achieved under the procurement helps to reduce the environmental impact or is aimed at procuring circular products or services, then it is also an (green) circular procurement. If additional social aspects have been taken into account in the procurement, then the procurement is also sustainable.

1.5. Approaches/categories of circular procurement

There are four different approaches to circular public procurement: procurement including green public procurement (GPP) based circular criteria, procurement of new circular products and materials, procurement of services and new business concepts and procurement promoting circular ecosystems.

Regarding the first one, the main aim is to extend products lifespan by adding more GPP and circular criteria to the tender. In order to do this, the focus is put on key words like recyclability, share of recycled materials, reuse, packaging material. Usually some requirements are mandatory such as the reuse of the entire product or some of its elements, and the availability of spare parts, after the guarantee. Moreover, long guarantee or the length of guarantee is awarded.

About the second approach: it focuses on new products and materials that are procured and/or developed by innovative circular public procurement, such as products that are significantly better in terms of recyclability, share of recycled materials, long lifespan and disassembly procedure. For example, under this category it is possible to find building components of recycled materials, or even textiles made of recycled materials. Text requirements are the usage of recycled materials in the product or certain fraction of it, the recycled packaging, utilizing secondary material flows or by-products.

Concerning the third approach, some circular aspects are applied, such as leasing concept, buy per use, shared use, buying and selling back. In this category, the efficiency and/or intensity of use is preferred to the ownership, like car sharing.

Finally, the fourth approach is about the investments which are made for the development of circular ecosystems, like the development or support of closed loops and the creation of networks and alliances. The emphasis in the procurement process is on the clean and non-risky cycles; that is why requirements are presented for the use of non-toxic chemicals and for the safe disposal of materials or their parts.

Circular procurement can be promoted by adding “circular criteria” (e.g. criteria for recyclability, use of recycled materials, reuse, etc.). This means buying

circular products and services, such as paper made from 100% recycled material. Some of these criteria, supporting circular elements can be found in the GPP criteria. This may be considered the simplest way or the first phase of circular purchase.

- **Procurement of new and innovative products promoting circular economy-based business (supplier level).**

Public procurement could provide conditions that stimulate innovative solutions/products and create new business models and markets for new products and services. This 'supplier level' approach give the suppliers (producers/service providers) incentive to build circularity into their product development process, in order to ensure that products and services they offer meet circular procurement criteria. Such products are usually remarkably better in terms of recyclability, use of recycled materials, disassembly, long lifespan, etc. These are products that are commercialised but have not been on the market for a long time, or products that will be developed as a result of the procurement process. This approach highlights the procurer's ability to conduct an innovative procurement process. Examples of such products are textiles with 100% recycled content or building components made of recycled material.

- **Procurement of services, new business concepts and circular ecosystems (system level).**

This approach contributes to a more systemic change in order to obtain circular solutions and business models that replace existing ones or offer new market opportunities. It usually involves more performance-based procurement and procurement of services instead of products. Such procurements give the producers/service providers the possibility to retain greater control over the items they produce/offer and the embodied energy and materials, thus enabling maintenance, reconditioning and recovery. The procurers usually benefit from this type of procurements, as they only pay for the service they require and use, and often receive a better service as the producer/service provider has a greater interest in providing a product that lasts. Examples of such new business models are product-service systems, leasing concept, shared use, buy-per-use and buying and selling back. More traditional examples include furniture leasing and car hiring. New thinking is needed for buying services instead of products, e.g. lighting for the next 30 years instead of lamps.

This approach could address also a wider change in the system, focussing on the investments and creation of specific circular cooperation networks, industrial symbiosis schemes and other circular ecosystems that call for commitment from different stakeholders. Circular ecosystems could be efficient platforms in supporting closed loops and creating networks in which waste or excess energy from one actor would be used as a raw material/input for another. Examples include, for instances, buses using locally produced bioenergy, or construction sites that utilise waste material from other processes.

Procurement including GPP based "circular" criteria	Procurement of new "circular" products	Procurement of services, new business concepts and circular ecosystems
Better quality/circularity products	**New products**	**Product service systems and circular ecosystems**
Improved products and services are procured by adding GPP and circular criteria to the tender competition: • Prevention of waste • Recyclability • Share of recycled materials • Reusability • Avoidance of certain hazardous chemicals	New products are procured and/ or developed by innovative public procurement: Products are significantly better in terms of recyclability, share of recycled materials, long lifespan, disassembly, etc.	Product-service systems are procured, new business models and collaborative networks are developed that promote circular aspects or systems: • Combined product service business models • Leasing concepts • Renting • Shared use • Buy-per-use Industrial symbiosis based collaborative networks
Examples:	**Examples:**	**Examples:**
• Paper products (e.g. copying paper made from 100% recycled paper fibres) • Office IT equipment and other ICT devices (e.g. avoidance of hazardous substances, product life-time extensions) • Furniture (e.g. providing easy-to-disassemble, repairable and recyclable furniture) • Cleaning products and services (e.g. avoidance of hazardous substances) • Packaging (e.g. degrease the quantity of packaging)	• Building components of recycled materials • Textile products made of recycled materials • Furniture (e.g. redesigned, reused, refurbished furniture and related services to prolong the life-time) • Building and construction (e.g. use of recycled asphalt, circular reconstruction of buildings)	• Leasing furniture instead of buying it • Leasing football stadiums (artificial turf) instead of building and owning them • Additional services that enable the prolonged life-time of used products and services (take-back, maintenance, refurbishing, etc) • Construction projects with closed material loops • Locally managed and produced biomass based renewable energy production systems

Table 1: Circular Procurement Examples

2. CIRCULAR PROCUREMENT IN PORTUGAL

2.1. National legal and regulatory framework

Currently in Portugal there is a vast repertoire of existing policy and regulatory framework that can support the implementation of circular procurement.

Therefore, in this subchapter they will be listed thus including national and European level.

- Portaria n. º 28/2019: A registry and data regulation is created in the Integrated Register of Waste Map and in the Registry of Pollutant Transfers and Emissions. It allows to identify opportunities for improvement.
- Law n. º 69/2018: System to promote the return and deposit of beverage packaging that promotes the prevention and management of waste integrated into the life cycle of the product, based on the circular economy.
- Law n. º 152-D/2017: It establishes measures of protection to the environment and human health. It defines the principles and regulations applicable to the management of packaging in plastic, glass, metal and aluminium and residues, with the objective of increasing the overall valuation and global recycling of tires, glass, paper, cardboard, plastics, wood and new oils. It determines the management of batteries and accumulators, from their market, collection, treatment, recycling to the disposal of waste. It defines the management of end-of-life vehicles (ELV), taking into account the prevention of waste production and promoting the reuse, recycling and valorisation of ELV.
- Law n. º 267/2009 modified by Law 102/2017: Management of used food oils produced by the industrial, hotel and catering sector (HORECA) and the domestic sector. Vegetable and animal fats are excluded. It establishes a set of norms that have as objective the correct collection, the transport, treatment and recovery.
- Law n. º 67/2014: It establishes the general regime applicable to the prevention, production and management of waste. It is an instrument of macroeconomic planning for waste policy, establishing national strategic guidelines for waste prevention and management, in a protection perspective of the environment and of the development of the country. It determines also the computer consumables and the management of used toner cartridges.
- Portaria n. º 40/2014: The purpose of this ordinance is to clarify aspects inherent in the inventory of materials that contain asbestos that come from RCD and its characterization, packaging, transport, storage and disposal.
- Decision 2014/955/UE: List of waste taking into account the origin and composition of waste.
- Regulation (UE) n. º 1357/2014: Grouping of waste related to the area of activity that generates waste, industrial, urban, agricultural and hospital waste.

- Law n. º 127/2013: The authorization of the operation of incineration or co-incineration of waste involves the decision on the authorization of the installation that performs it.
- Law n. º 54/2012: The law defines the means of prevention and combat of theft and receiving f non-precious metals with commercial value and provides for additional and reinforcement mechanisms in the scope of supervision of the waste management business.
- Law n. º 73/2011: Waste management operations aimed at preventing or reducing waste production, its harmful nature and its adverse impacts arising from its production and management, as well as reducing the impacts associated with the use of resources. Defines waste that isn't covered by the management, they aren't subject to the provisions RGGR (General Regime of Waste Management). It allows correction of its management by the interventions in the life cycle of waste. It establishes how the operations of the RCD must be. It establishes that the collection of urban waste is the responsibility of the municipalities that, in turn, integrate Urban Waste Management Systems. Also, in the specific case of used VHS cassettes or diskettes, the general waste management regime applies.
- Law n. º 276/2009: It refers to the agricultural valorisation of sludge from WWTP.
- Law n. º 194/2009: It establishes that the responsibility for waste management, including costs, corresponds to the initial producer of waste, without prejudice to the producer or the distributor. The management is carried out by the municipalities or specific legislation on waste.
- Law n. º 183/2009: It determines landfill waste and the general requirements of the design, construction, operation, closure and post-closure of landfills. The objective is to avoid and reduce the negative effects on the environment of the disposal of waste in landfills (contamination of surface and groundwater, soil and atmosphere) as well as risks to human health.
- Directive 2008/98/CE: Waste definitions, prevention, reuse, preparation for reuse, treatment and recycling, and the distinction between recovery and waste disposal concepts.
- Law n. º 45/2008: It ensures the viability of the supervision and control of shipments of waste at the entrance, interior and exit of the Community.
- Law nº 178/2006: It determines the licenses of the activities related to waste management and the regulations that accompany it. Mechanisms for adapting licenses to technological innovations and responding to the negative effects on the environment in this sector. The aim of the TGR is to improve the behaviour of economic operators and final consumers in order to reduce waste production and its more efficient management through the internalization, by waste and consumer producers, of the environmental costs associated with them and encourage the greeting of national waste management objectives.
- Law n. º 3/2004: Recycling centers, recovery and disposal of hazardous waste (CIRVER) are integrated units that combine the best available technologies with affordable costs. The law establishes the legal regime

of the license of the installation and operation of these establishments for the treatment of hazardous waste.

- Law n. º 89/2002: The aim is to prevent the production of waste, promote and develop reuse and recycling options (which guarantee a high level of protection of health and the environment) and promote the elimination of environmental liabilities. It defines the strategic principles that must follow the management of the industrial waste and the creation of an integrated system of treatment of industrial waste.

2.2. Circular procurements process in Portugal

In Portugal, there are currently four action plans related to circular procurement:

- PERSU 2020 - Strategic Plan for Urban Waste 2014-2020;
- Action Plan for Circular Economy (APCE);
- National Strategy for the Ecological Public Procurement (ENCPE 2020);
- Alentejo's Circular Economy Forum.

PERSU 2020 - Strategic Plan for Urban Waste 2014-2020 was approved by Decree No. 187-A on the 17th September 2014. The plan sets national targets for Urban Waste (UW) prevention and presents measures associated with accomplishing this objective. The waste strategy, advocated in this plan, maintains the objective of guaranteeing a high level of protection of the environmental and of human health, through the use of appropriate processes, technologies and infrastructures. It also promotes the minimization of the production and hazardousness of waste and seeks to integrate them in the production processes as secondary materials in order to reduce the impacts of the extraction of natural resources and ensure the essential resources to the economy, at the same time as creating opportunities for economic and employment development.

The Action Plan for Circular Economy (APCE) approved by ministers Resolution n. º 190-A/2017 presents actions aligned with the European pillars of Action for the Circular Economy with the aim of establishing a carbon neutral economy with neutral GHG emissions and effective use of materials by 2050, focusing on research and innovation on sustainability. It creates solutions, with emissions and resources integrated into business models that stimulate the creation of jobs, an efficient and effective use of the resources mobilized and their economic duration, enabling inclusive and resilient economic prosperity and a thriving, responsible, dynamic, inclusive, informed, participative and more collaborative society.

National Strategy for the Ecological Public Procurement (ENCPE 2020) approved by Resolution No 38/2016 of the Council of Ministers of 29 July 2016, provides that the inclusion of environmental criteria in public procurement is mandatory. Moreover, it is an instrument which intends to promote the reduction

of pollution, the consumption of natural resources and integration of efficiency in the system.

Alentejo's Circular Economy Forum main objective is to stimulate circular economy in Alentejo region. It is a network of regional partners from public and private sector where opportunities and constraints associated related to circular economy in the region are debated. Through regular and systematic interactions among different entities, Alentejo's Circular Economy Forum is a space of coordination, but above all, is a space where different stakeholders exchange knowledge, contacts, experiences, projects and identify opportunities or constraints for the application of circular economy concepts. It is moreover part of CircPro, since it was presented as a project good practice.

Public authorities, as contracting authorities, play an important role in the implementation of the circular economy, and it is up to them, among other things, to actively promote in their tendering procedures standards that stimulate the use of the principles of circular economy.

Public authorities should exercise their considerable purchasing power in an environmentally and socially responsible way, without prejudice to the primary objective, which is to obtain the public work, product or service that enables the achievement of a certain objective of public interest.

The European legislator, aware of the imperative need to implement the circular economy in public procurement, has created tools, through Directive 2014/24/EU of the European Parliament and of the Council of 26 February, which enable contracting authorities to take a circular approach to public procurement.

The path followed by that Directive contributes to minimize prevalence of economic criteria in public procurement in favour of sustainability criteria. Environmental protection is a crucial aspect and should be a selection criterion in public procurement procedures. The challenge for contracting authorities is to take the legal steps that enable including environmental criteria in the range of criteria by which the most economically advantageous tender appears.

In what regards achieving the objectives of circular economy, carrying out an analysis and planning ahead to start the procedure of the purchasing procedure is crucial. When deciding which procedure to be used and which the best way to include circular economy criterion, it is useful to have a deep knowledge on the market - for example, availability of companies and resources, cost and possible implications of alternative and more ecological solutions, among others.

3. THE REGIONAL CONTEXT, ALENTEJO REGION

3.1. The territory

Alentejo is the largest Portuguese region, with a 31.604 km² territory, corresponding to about one third of the portuguese continental area and with one of the lowest population densities (22.3 inhabitants/km^2).

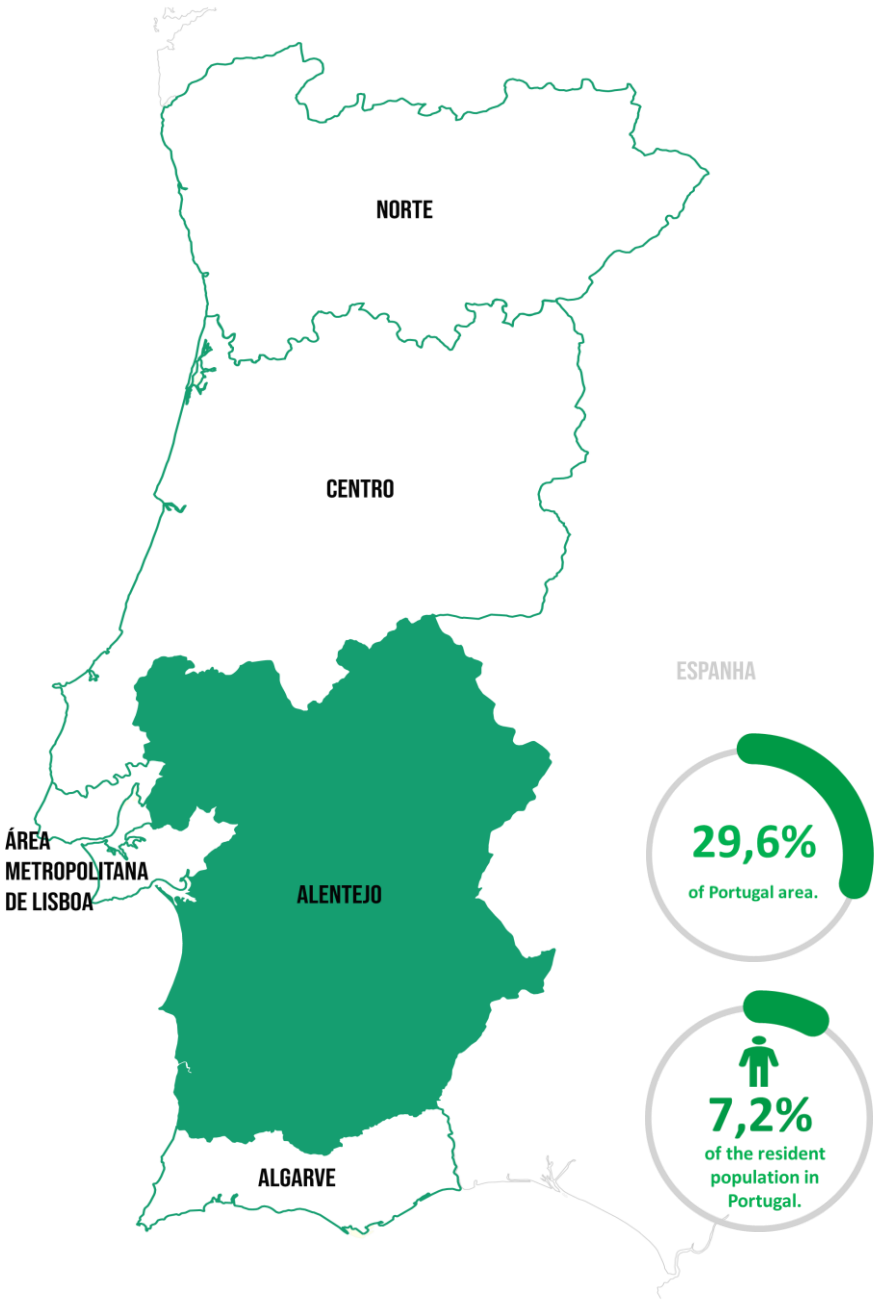

Figure 6: Alentejo Region

As a sustainable territory with a strong regional identity, it is sustained by a polycentric urban system, ensuring adequate levels of territorial cohesion and affirming a reinforced integration with other national and international spaces through the valorisation of its geostrategic positioning. Characterised by its significant natural heritage and landscapes, the Mediterranean ecological systems and its agricultural landscapes stand out as focal points of European biodiversity and where Natura 2000 represents about 20% of the territory.

Alentejo territory is also marked by a coastal stretch of about 170 km, which is one of the best preserved in Europe, where natural values of remarkable relevance occur, integrating protected areas.

Despite the potential acknowledged, important changes have occurred in the Environment and Landscape, assets confronted with the persistent and announced effects of physical and human desertification and climate change, which reach the quality, economic and social robustness of several regional productive subsystems. Thus, it is intended that territorial sustainability be based on the valorisation of endogenous resources, namely natural and landscape values, and on the development of increased levels of strategic concertation and functional cooperation, capable of generating new opportunities and responding effectively to potential environmental and social risks.

Fostering the transition to a circular economy can help Alentejo to achieve its goal, restoring natural systems, reducing GHG emissions and minimising the loss of natural capital and biodiversity.

The dynamics of *montado* activities system, in particular the production of cork, extensive livestock farming of indigenous breeds and the small productive sectors of forest base (with economic and social expression in the different subregions), supported also by knowledge activities and services, has highlighted the importance of maintaining the Mediterranean systems which positions the Region as a territorial mosaic of supply and support (food, photosynthesis, climate and air quality regulation, genetic bank of biodiversity, surface and underground resources) and source of amenities and natural spaces.

To these types of activities, investments that depend less on resource mixes and more on attracting companies and structuring interfaces with research and innovation, namely in agri-food, water, electronics, digital economy, renewable energies, among others, can be considered.

These examples also highlight the alignment with sectorial public policies and a brand of innovation and internationalization, focused on emerging regional assets.

3.2. The regional context: SWOT Analysis

In Alentejo Region, several initiatives and projects related to circular economy are already ongoing, with emphasis, and as mentioned, the Alentejo Circular Economy Forum (FECA), coordinated and driven by CCDR Alentejo, which involve a wide range of regional and national partners to reflect, discuss and outline the pillars on which the regional strategy for boosting the circular economy will be based, in the short, medium and long term.

Aiming to support the transition of the region to the circular economy objectives, CCDRA implemented FECA, being a model of governance in the region. Through regular and systematic interactions among different entities, FECA is a space of coordination, but above all, is a space where the different stakeholders and CCDRA exchange knowledge, contacts, experiences, projects and identify opportunities or constraints for the application of circular economy concepts. In order to manage all entities, a functional structure has been defined within an interregional and cross-border territorial scope.

A Strategic Council was formed, coordinated by CCDRA and integrating 1 university, 1 polytechnic institute, 1 inter-municipal community, a public company, a business association and ISQ institution.

The Strategic Council meets, on average, three times a year and its main action is to discuss and approve the region's circular economy regional agenda.

Supporting the Strategic Council, 5 Working Groups were created in order to develop different actions. Taking into consideration the diversity of themes related to circular economy, the groups are coordinated by different entities. Each entity participates in FECA voluntarily and the stakeholders can be anyone who wants to contribute to the region's transition to a circular economy.

In order to evaluate the regional context a specific survey was developed aiming at assessing the current knowledge on circular procurement.

The survey focused on the following main questions:

- Do you know if your entity has already applied circularity criteria in public procurement and in at least one procurement process?
- Do you know any case where circularity criteria have been applied in public procurement and in at least one procurement process (products/services)?
- What circularity criteria were used in the technical specification?
- What evaluation criteria was used?
- Do you consider relevant the application of circular procurement procedures in your institution? What do you think is the main contribution in its application?

The main results showed that circular procurement is still, nowadays, an unknow issue in the region and only a very few cases or attempts to implement it were performed.

As showed in the images bellow only 33 % of the consulted entities is aware of what circular public procurement is and only 17% knows an example where circular criteria were applied.

This numbers reflects FECA's work and importance with a special focus on the communication to the regional entities about this specific issue.

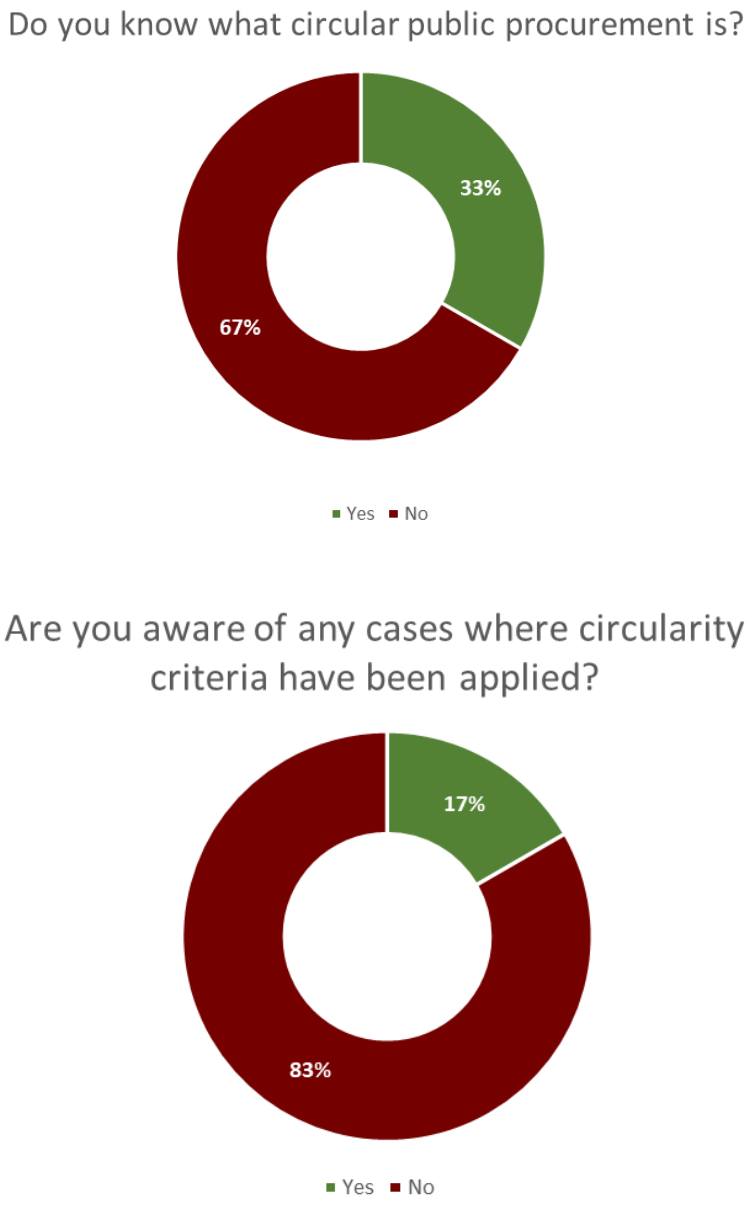

Figure 7: Survey Results

In this context circularity criteria have been applied in the construction sector, namely in a public procurement for the requalification of companies' incubator building, more specifically in an energy efficiency intervention. The evaluation criteria used was related to the reduction and recycling of sub-products and the main benefits obtained were environmental and economic.

As mentioned, the region presents several initiatives and projects related to circular economy but circular procurement is still with a low use in the region. One of the main reasons to this lack of knowledge can be due to market failures which include externalities, information asymmetries, and moral hazards. As a consequence, some socially desirable actions may not be profitable. In such contexts, public norms and standards, circular public procurement regulation, direct public investment, tax measures, among others, can be an obstacle.

Taking into consideration the regional survey the following SWOT analysis was performed.

STRENGTHS	WEAKNESSES
Makes it possible to implement, in production systems, R & D & I policies that generate new value-added projects and generate quality jobs. Growing awareness regarding the concept of sustainability in its 3 aspects: economic, social and environmental. Allows a better use and optimization of both materials and waste, since it allows a second life of the different products or components, thus lengthening their useful life and guarantees adequate waste disposal. Some economies have great capacity to produce resources derived from agribusiness, livestock, forestry and fishing. The continuous development of bioenergy has motivated the creation of a dense business network in which the use of biomass for thermal and electrical use as well as for the production of biofuels stands out.	The product life cycle analysis (LCA) involves costs to be considered by SMEs and entrepreneurs. Market failures and missing markets which include externalities, information asymmetries, and moral hazards. As a consequence, some socially desirable actions may not be profitable. Behavioural obstacles that lead to irrational decisions without using all the available information and are time inconsistent. Social norms and cultural factors also have an inadequate influence. Limited knowledge of the characteristics of the resources and the recovery processes for the potential conversion of raw materials and the obtaining of products from the technical or biological cycles. Little knowledge of companies of the potential demand for alternative raw materials and the availability of products. The reuse of products or components generates a complex network of interdependencies in a chain that increases the risk of vulnerabilities.

With the development of a normative framework of reference (as is the case of the European Union), a series of measures related to the circular economy have been put in place that are materializing in strategies and public policies at all levels and in all scopes.	High costs of implementing, for existing products, circular designs in all its components. Existence of 2 speeds in the implementation of eco-efficient measures: for SMEs and for large companies. Poor treatment of by-products and waste derived from economic activities and, above all, poor management of domestic and urban waste. The lack of sustainable design in products already manufactured makes it extremely difficult to recycle and reuse if current standards are strictly applied. Insufficient knowledge and resources management. Deficiencies in the connection of local markets with global ones.
OPPORTUNITIES	**THREATS**
Possibility of increasing competitiveness through the development of new sustainable products. Existence of new forms of urban solid waste management through the development of the biofactory concept. Possibility of promoting the implementation of final recyclers. Advantages of converting by-products into resources. Future normative changes in the legislation that favour, encourage and even force the full reuse of by-products in the production chains. Possibility of improving and automating operations through the use of Information and Communication Technologies (ICT). Development of small-scale bioindustries in rural areas. Possibility of reconversion and remodelling of production plants. Growing social interest in the use of resources and in circular economy.	Acquisition costs can represent a significant obstacle. Adjustment costs represent another threat, especially in the presence of uncertainty and include, for example, mobilizing staff. Because of transaction costs, a beneficial action may be undesirable, or unpractical. Economic approaches suggest choosing the most cost-effective solutions. Insufficient environmental awareness is a strong obstacle to the implementation and extension of the circular economy procurement concept. Lack of definition of affordable standards to guarantee the development of circular economy procurement strategies, due to the novelty of the concept. Decrease in the amount of available resources due to the effects of the climate crisis. The frictions that the change of mentality from a linear model to a circular one will unleash among the actors who feel threatened by the disappearance of the linear model or among those who lack

Existence of policies to support entrepreneurs and consolidate innovative companies. Increased demand for bioproducts and circular/efficient alternatives. The applicability of the circular economy model to all sectors and productive activities allows it to be easily expanded and for synergies to be used by all sectors. The potential of the circular model as an engine for generating new jobs in sectors related to sustainability. Promotes the provision of more circular products and services and contributes to the indicators undertaken in the framework of the European Ecological Pact. Increased reduction, reuse, recovery and recycling of materials and energy. Training/capacity building/awareness for technicians/managers for the introduction of circularity criteria in public procurement processes. Opportunity to connect organisations and to strengthen the creation of proximity chains.	the necessary knowledge to understand the circular paradigm. Uncertainty which represents one of the largest threats since it is expanding into different dimensions: future developments of demographics, technologies and economics.

Table 2: SWOT Analysis

3.3. Key sectors

Alentejo region's characteristics has proved to be fundamental to the development of sustainable solutions that would allow business and economic development.

Water and energy resources are key elements for the development since the main regional economic activities are agri-food production which is heavily dependent on these resources.

Therefore, the development of solutions that would make it possible to meet the challenges posed by the development of the activity in an environmental, economic and social term, using the association with the strategic resources of the region is crucial.

On the other hand, strongly associated with human activity is the production of plastics, which is increasingly becoming one of the main focuses of

environmental pollution. Taking this into consideration the region's key sectors are the following:

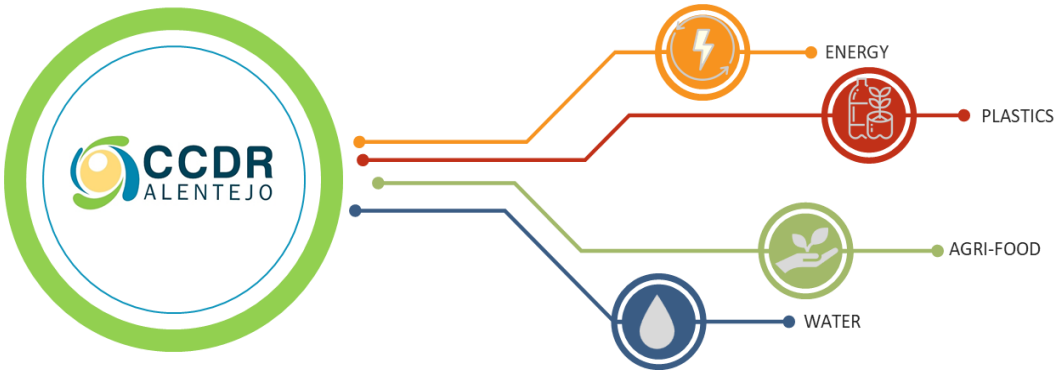

Figure 8: Region Key Sectors

3.4. Key stakeholders and engagement

Taking into consideration the barriers and the threats, the use of adequate communication channels adjusted to the different types of stakeholders is key. This allows their involvement at a minimum cost and maximum exposure, with regards to dissemination and taking advantage of opportunities also considering FECA channels and members.

The regional key stakeholders should be integrated in a stakeholders' board to be established with relevant representatives from the communities, regional public administration, businesses and FECA representatives.

The proposal of a stakeholders' board is to contribute to the promotion, follow-up and monitoring of the circular procurement development and implementation in the region, towards a more efficient, participative and lasting governance model. It is intended to be a flexible and inclusive structure, of consultation and voluntary, gathering a set of regional key factors such as:

- Regional administrations,
- Universities and research centres,
- Municipalities and parishes,
- Intermunicipal communities,
- Development agencies,
- Biotechnology laboratories,
- Incubators,
- SME and other companies,
- Municipal companies.

3.5. Regional Circular Economy Best Practices examples

Some of the projects developed in the region and that consist of best practices examples are described below.

- **(De)construct for Circular Economy**

This project aims to promote a regional strategy for the re-use of construction products and components, as well as the recycling of construction and demolition waste (CDW), thus reducing the environmental impact of construction and promoting its circularity. This project will act as a key catalyst for the overall strategy of the region as it solely focuses on circularity and its environmental impact in Alentejo.

- **PlaCarvões - de Plásticos a Carvões Ativados (PlaCarvões - from Plastics to Activated Carbon)**

This project comprises the implementation of a solution that integrates the principles of Circular Economy in the chain value of plastics, with the recovery of waste plastics (agricultural plastic, disposable plastics and RDF) through the production of activated carbon - this is a material with an extraordinary capacity, in this particular case, to selectively capture liquids or impurities, having a high power of liquids clarification and purification.

- **Alentejo Circular (Circular Alentejo)**

The project aims to raise awareness and mobilize the economic agents of Alentejo in the ranks of olive oil, wine and swine for the adoption of the Circular Economy model. It also aims to promote the creation of value in agricultural and agro-industrial farms, and consequently in the region, through the transfer of knowledge about practices and technologies for the efficient use of resources and the recovery of waste.

- **URSA - Alqueva byproducts circulation units**

URSA focuses on the enhancement of organic by-products from agriculture through the production of organic fertilizer by composting, which is returned to farmers in exchange for the delivered agricultural by-products, for fertilizing crops, contributing to the increase of soil fertility and its rehabilitation as a filtering barrier, promoting downstream water quality and long-term sustainability of irrigation.

- **LCA4Regions**

LCA4Regions project aims to contribute to the more effective implementation of environmental policy instruments by the application of Life Cycle Methodologies.

- **REUSE**

REUSE aims to promote the circular economy and water reuse in agricultural irrigation in Alentejo, a Portuguese region characterized by low rainfall and high intensity of irrigated agriculture, through the use of environmentally sustainable

and low-cost technologies (treated wastewater disinfection from solar energy), but also by the creation of knowledge and agriculture stakeholder's engagement to water reuse option.

- **HYDROREUSE**

HydroReuse was an I&D project with the main objective to develop new alternatives for management of main agro-industrial wastewaters produced in the Alentejo region (slaughterhouse, winery, olive-oil and cheese production wastewaters). These alternatives comprised the development of innovative processes with chemical methods for wastewaters pre-treatments, such as precipitation, and a hydroponic system- based strategy with dual functionality using tomato plants as a studying model.

- **ECO2CIR**

This project focuses on cross-border cooperation for introducing a green and circular economy by preventing, improving recycling, waste management and recovery. The project also promotes the exchange of information and experiences already underway, with good results on both sides of the Ray, creating mechanisms to improve the ecological and circular economy through an appropriate waste management hierarchy established by Directive 98/2008 in the whole Euroregion.

- **SUSTAINOLIVE**

The general objective of SUSTAINOLIVE is to promote the sustainability of the olive oil sector through the implementation and promotion of innovative and sustainable solution sets in management practices, based on agroecological concepts and in effective and active exchange of knowledge in the main actors of the sector.

- **AQUACOMBINE**

AQUACOMBINE project aims at demonstrating combined aquaculture and halophyte farming (farming of saline tolerant plants) using the principles of circular economy, where waste is recovered and utilised within the system to create both internal value and new products, beside avoiding the waste. Residues are utilised within the system to create both internal value and new products.

4. Guidance for systematic and efficient use of CP

4.1 Strategic level (for organisation executives)

4.1.1 Procurement policies for organisations

There are three types or “levels” of models for implementing circular procurement:

1. “system level” (the contractual methods that the purchasing organisation can use to ensure circularity).
2. “supplier level” (describes how suppliers can build circularity in their own systems and processes, in order to ensure the products and services they offer meet circular procurement criteria)
3. “zero waste design” (focused on the products that suppliers to public authorities may themselves procure further down the supply chain.)

To make circular procurement successful the starting point is a clear definition of the procurement project ambition and well-defined organizational policies.

The ambitions can be established in, for instance, a sustainability policy/environmental policy, an action plan for socially responsible procurement/green public procurement or a strategy for circular procurement. In that context, it is important to convert the ambitions into organisational policy. Such strategic ambitions would provide the strategic direction and operational targets for incorporating circular economy into procurement.

The following diagram shows the process recommended for the implementation of these ambitions:

Figure 9: Procurement Process

The mentioned process will help to identify ambitions of procurement project and select appropriate procurement approach, that may also be the initial step to circular procurement.

On the other hand, it is crucial to understand the difference between circular economy and circularity, as they refer to a different level. On one hand, circular economy is focussed on the economic system as a whole: it involves high-value reuse of products, components, and materials, it ensures that new products are non-toxic and makes use of renewable energy. In this way, products, components, and materials retain their value in closed cycles. Depending on the definition, circular economy may also include social aspects, such as employment. On the other hand, circularity primarily concerns the high-value technical use and reuse of products, components and (raw) materials.

In this stage, one of the first practical steps is to consider how Circular Procurement (CP) can be integrated into the existing procurement practices and systems of the organization. Creating a circular procurement policy or incorporating circular economy principles into existing Green Public Procurement (GPP)) or Sustainable Public Procurement (SPP) policy can be a good start to ensure it is visible as a priority, although not mandatory.

4.1.2 Procurement procedure

Circular procurement is a complex procedure in which is important to develop a clear procurement procedure or integrated procedures to ensure the purchase of circular products and services. Furthermore, circular procurement procedures should be aligned with the strategy.

This should determine the following information:

- How the circular procurement process should be carried out?
- Who is responsible for which action during the procurement?
- Who should be involved inside and outside the organisation?
- Which product groups should be covered with circular procurement?
- Principles to select CP approaches in each procurement project (product, service, system and level). Operational level (for procurers).

4.2 Operational level (for procurers)

4.2.1 Preparatory stage

To better promote circular solutions, it is important to focus in the following elements of procurement:

- Focus on service instead of products;
- Focus on the product’s design, use phase and end of life,
- Focus on market dialogue.

At the beginning of the procurement project, it is necessary to determine the deeper needs of the organization rather than the derived product request. As

mentioned before, the first step is to clearly define the ambitions, the specific needs of the company and what is really expected to be achieved. For example, is it needed new office furniture or good office furniture (that could be second hand)? Need lamps, or need lighting?

Thinking in terms of the deeper needs of an organisation reveals more opportunities for circular solutions. The needs analysis also must take into account what are the legal and administrative requirements.

At the preparatory stage, budget for the procurement should be also considered and challenges include extending circular thinking beyond a “financing option”. It must be taken into consideration that the circular options (products and services) may have a higher purchase price, compared to the alternative linear products and services. However, the life cycle costs (e.g. operational costs, end-of-life costs, etc.) are often lower. Thus, it is beneficial to take Life Cycle Costing (LCC) approach as part of CP (see further in Step 6 Defining green/circular criteria).

During the needs analysis, procurers need to get to know the market (products, suppliers, manufacturers, service providers, price levels, etc.) to acknowledge what is already available and the possibilities; following the ambitions of the organisation.

This stage can help to:

- Gather information on how the specific market is structured and how it operates.
- Find out, which solutions are available.
- Increase the trust and credibility with suppliers and improve relationships with them.
- Create the market conditions needed to deliver the potential products and services.
- Help procurers to identify opportunities for sustainability and innovation.

Furthermore, it is helpful to clarify the needs and the circularity definition (appropriate to the context of the request) to market players. Therefore, it is ensured that the concept of circularity it is understood in the same way by both parts.

This stage can also include a Life Cycle Impact Mapping exercise to identify potential focus areas related to environmental and socio-economic risks and opportunities. A successful way to prioritize potential actions is by means of the ‘Procurement Hierarchy’, based on the European Waste Hierarchy: reduce, reuse, recycle and recover. It is important to define an appropriate circular approach which will determine what procurement steps should be elected and where the CP considerations should be applied.

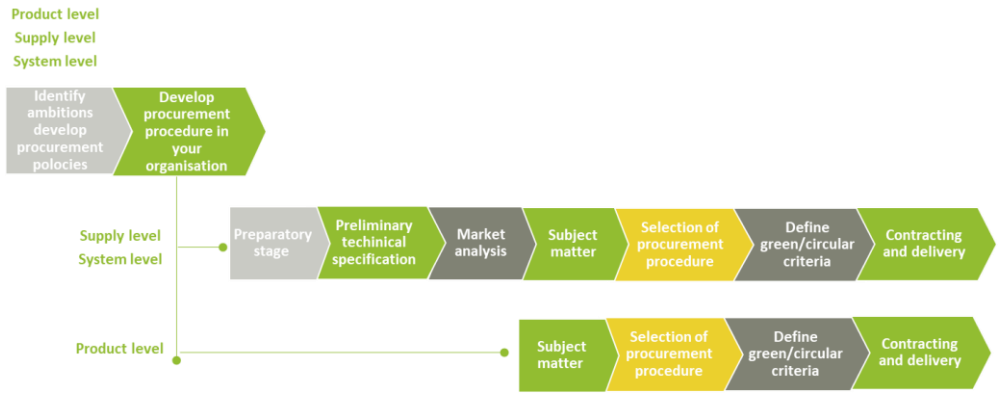

Figure 10: Step by step process of circular procurement of different CP approaches

All this information is needed to identify the circular approach (product, supplier or system level).

Independently of the chosen CP approach, the procurement must start with strategic decisions. First of all, the organisation needs to identify the strategic ambitions and develop organisational procurement policy, and finally develop the procurement procedure and common rules that are followed with each purchase. Once CP is finished at the product level then the procedure starts with determining the subject matter.

In case of procuring at the supply or system level all the procurement steps should be taken starting from the preparatory stage and finishing with the contracting.

4.2.2 Preliminary technical specification

The next step involves the formulation of the preliminary technical specifications for the procurement subject, including general requirements for the procured products or services.

Organizations should determine whether technical or "functional" approach is suitable for achieving circular results. Many calls for proposals are based upon technical specifications, and customers specify the required product specifications. If the specification is to be more functional, it must first thoroughly explore the deeper needs of the organization. The use of functional specifications provides opportunities for innovative and often more circular solutions. These innovative solutions were not prescribed, but they can better meet customer needs. Functional specifications can better fulfil the needs allowing to take advantage of market knowledge and innovation potential.

For example, when looking for a healthy office environment, some technical specifications can de defined ("2,000 square meters office with X, Y, and Z sizes)" or, otherwise functional specifications ("healthy working environment for 300 employees")). Functional specifications allow contractors to include the latest developments and use their creativity to meet customer needs. The functional (or "output-based/performance-based") standard will describe the desired

result, as well as the expected output (for example, in terms of quality, quantity, and reliability).

Using functional specifications also depends on the maturity of the market in terms of circularity and the complexity of the product group. The more mature and functional market is, more open it is to the functional specifications, and in case of a less mature markets it may be an idea in order to indicate the type of solution that must be considered.

To sum up, functional specifications are not always the best choice. When dealing with imature markets or simple products, technical specifications with due consideration of circularity may provide necessary guidance for market players as they are more specific and describe the contract while providing measurable requirements.

It is important when undertaking circular procurement that both the supplier systems and product technical specifications are considered.

4.3.3 Market analysis/consultation

In order to validate the ambitions, and preliminary specifications/requirements market consultation is crucial, especially if new and innovative circular products and services are procured. Market analysis can also be useful to determine if suitable alternatives are available that can reduce the environmental impact. Maintaining stakeholders involved in circular procurement, with transparency is crucial. The success of any procurement procedure will ultimately be determined by the market's response to the request.

So, when undertaking such processes it is necessary to have clear goals for the market consultation, making these goals clear in the invitation. Possible goals for market consultation are:

- Obtain information about market opportunities.
- Assess purchasing strategy and ambitions.
- Encourage market players to cooperate;
- Create external support for procurement.

Preparing a market consultation in a way that ensures mutual information exchange is very important. Most of all, ambitions must be shared with market players. They are also interested in this information. In addition, asking market players for the information needed enables identification of circular opportunities and the role of the parties.

An open attitude allows to take full advantage of these discussions. The information obtained from this process may be used in the final call for proposals. The key steps in terms of contractor involvement, resilience and interest in participating in circular procurement tenders are as follows:

Figure 11: Key steps of the contractor Involvement

Depending on the goals, there are different ways to conduct market consultation. The selection should reflect the efforts to be made by market participants, ie. Consultation should be proportional to the size of the contract. There are basically three types of market consultation:

- Inquiry for Information - digital inquiry for information, for example through a questionnaire via *TenderNed*;
- 1 on 1 discussions - individual discussions with market participants.
- Group research - an open meeting where market participants share their views and can engage in the debate.

Choosing the way that best suits the goals and approach the market consultation with an open attitude will allow to get the best results. Creating a transparent market consultation report and sharing it in the public domain (in the case of a public organization) as an attachment to the tender documentation can be an interesting tool.

4.2.4 Subject matter/value chain

The subject to be procured must be defined or finalised based on the results of the previous steps. The "subject-matter" of the contract relates to what product, service or work is necessary. This determination process generally leads to a product, service, or job description, but can also take the form of a functional or performance-based definition. Selection of subject-matter is particularly important as it defines the acceptable scope of specifications and other criteria that can apply, as well as the approach to circular procurement.

4.2.5 Selection of procurement procedure

After deciding the subject matter, the procedure procurement can be selected based on the value of the contract, the number of suppliers in the market, and the extent to which the collaboration between parties can stimulate. Public organizations must comply with the regulation on public procurement procedures and the private party may apply procurement rules when selecting parties.

Research and development (EU Directive 2014/24, Art. 14; EU Directive 2014/25, Art. 32), including eco-innovation and social innovation, are among the

main drivers of future growth and are at the centre of the Europe 2020 strategy for smart, sustainable and inclusive growth. Public authorities should make the best strategic use of public procurement to spur innovation and circular procurement.

EU Directives on public contracts shall only apply to specific public service contracts for research and development services provided two conditions are fulfilled:

- the benefits accrue exclusively to the contracting authority for its use in the conduct of its own affairs, and;
- the service provided is wholly remunerated by the contracting authority.

"Pre-commercial procurement" regards a R & D activity which has the aim of reaching the development of a prototype and a different set of agreement can be provided for the Intellectual property of the prototype that could be developed permitting private companies to use it, that’s way pre commercial procurement can be awarded without the payment of all the research activity and cost less because of the common effort to develop a solution that satisfy the need and, potentially, can become the new solution also for others

There are diverse tender procedures, below are detailed six commonly used procedures:

Figure 12: Tender Procedures

1. Restricted invitation to tender - one-stage procedure. It is suitable for smaller contracts to which three to five parties can be invited. This procedure allows the pre-selection of several parties, for example based on their previous experience with circular economy.
2. Open procedure - a procedure consisting of one stage: the award stage. Suitable for tenders with a small number of potential suppliers or short lead times.
3. Restricted Procedure - a two-stage procedure; first the selection stage and then the awards stage. This is suitable for tenders with many potential suppliers. The technical capacity for environmental protection at an earlier stage can be assessed and also the number of economic operators invited to tender can be limited
4. Competitive dialogue - restricted procedure with an additional step of dialogue after the selection phase and before the award phase. The dialogue stage creates additional opportunities, the procedure can be used by public authorities for purchases that require an element of adaptation of existing solutions; design or innovation; or under certain other circumstances. In the competitive dialogue any economic operator may submit a request to participate in response to a contract notice by

providing the information for qualitative selection that is requested by the contracting authority. In this case contracting authorities have to provide information on needs requested.

5. Competitive negotiated procedure restricted procedure with an additional step of dialogue after the selection phase and before the award phase. The dialogue stage creates additional opportunities to the project. The procedure can be used by public authorities for purchases that require an element of adaptation of existing solutions; design or innovation; or under certain other circumstances.
6. Innovation partnership - procedure for a complex project where only one or a very limited number of parties have the expertise to respond to the request. So, if a specific product or service is not currently available on the market, the contracting authority may establish an "innovation partnership". Innovation partnership is a new type of public procurement procedure ruled under Directive 2014/24/EU. The innovation partnership process takes place in three phases: a. The selection phase occurs at the very beginning of the procedure, when one or more of the most suitable partners are selected on the basis of their skills and abilities. The contracts establishing the innovation partnership are subsequently awarded based on the best price-quality ratio proposed. This phase is similar to a restricted procedure:
    - In the next phase, the partner(s) develop the new solution in cooperation with the public buyer. This research and development phase can be further divided into several stages designated for evaluating concepts, developing prototypes and/or testing performance. During each stage the number of partners may be reduced on the basis of predetermined criteria.
    - In the commercial phase, the partner(s) provide the final results.

In the context of innovative partnership, innovation takes place during the contract execution and the public buyer contracts with the best potential innovation provider. It is expected that the supplier (s) will develop an innovative solution and ensure its implementation on a real scale for the public buyer.

The needs of the public buyer should be described with sufficient precision to enable potential bidders to understand the nature and scope of the challenge and to have sufficient information to decide whether to participate.

Moreover, framework agreements, can be awarded with an open procedure- has been widely used and is considered to be an efficient procurement technique (not an award procedure) throughout Europe. Its use can favour innovation and access to relevant markets.

Framework agreements may be concluded according to five different models. With one or more economic operators by establishing all the terms of the agreement to be signed, or vice versa, without establishing all the terms providing a reopening of competition (so-called “mini-competition”) so that contracting authorities may tailor the requests to their needs, in the purchasing phase. The 2014/24 Directive provides for a mixed or hybrid model “closed but with the possibility to reopen the competition”.

The hybrid model allows public entities to purchase directly through the framework agreement (as in the “closed” model) or reopen the competition among the economic operators’ (this is possible only if allowed by the terms and conditions indicated in the procurement documents). It is the contracting authority that decides whether it might be convenient to reopen the competition among the economic operators inside the master contract.

If the dialogue round is difficult or impossible (in the case of open procedures), a market consultation should be selected before the procurement process or an information session should be conducted at the beginning.

The mutual understanding therefore gained will benefit all procedure process. Incorporating dialogue in the tendering process can increase the understanding between customers and market participants. Dialogue can help customers evaluate the capabilities of market players, and can also help market participants understand deeper needs of customers.

In that context, there are some tips:

- **Selecting a procedure that is proportional to the contract sizeis crucial.**
- **Establishing dialogue with market players enables better understanding the parties involved and making them aware of the ambitions.**
- **Avoiding high transaction costs for market participants or, in large-scale procurement consider providing compensation for their efforts will create an apropriate relationship with the market.**

4.2.6 Green/circular criteria definition

When the previous stages have been completed its possible to determinate the circularity criteria ensuring that the standards have a clear focus: using too many different standards can make it difficult for all parties to make a difference.

It’s possible to formulate circular criteria as selection criteria, minimum requirements and/or award criteria. The minimum requirements are set in the technical specifications and apply to the product/service. It will be releavante to use reward standards in the bid evaluation process. If there are selection criteria, these criteria apply to the supplier level.

Determine what is the best supplier (if there is a selection phase) and what is the best recommendation. Use the results to define the requirements and criteria for the selection phase (if any) and the award phase. Try to measure (quantitative) and evaluate (qualitative) circularity.

Selection criteria

The selection criteria provide the certainty that a particular supplier will be able to provide the requested product and/or service.

The selection of tenderers (EU Directive 2014/24, Art. 56; EU Directive 2014/25, Art. 76) consists in assessing the tenderers on the basis of the exclusion grounds (EU Directive 2014/24, Art. 57; EU Directive 2014/25, Art. 7) and the selection criteria (EU Directive 2014/24, Art. 58) set out in the procurement documents and the selection criteria (EU Directive 2014/24, Art. 58) set out in the procurement documents. These rules are designed to ensure that contractors and subcontractors comply with environmental laws to a minimum. Companies that violate environmental laws or have other serious shortcomings in environmental performance can be excluded, although they must be given the opportunity to "self-clean" and cannot be excluded for more than three years on this basis. Violation of the environmental law can also be used as a reason for refusing to award contracts to operators, refusing unusually low bids, or requesting replacement of subcontractors.

The reasons for exclusion are provided by EU directives. Some of these are mandatory for all EU member states, while others are implemented voluntarily at the national level, chosen by EU member states. The national contracting authority is obliged to use them in accordance with national-level regulations.

Techniques such as Life Cycle Costing, the specification of sustainable production processes, and the use of environmental incentive standards can be used to help the contracting authority determine environmentally friendly bids.

The contracting authority can use selection criteria to determine whether the economic operator is eligible to execute a particular contract:

Figure 13: Criteria examples

Minimum requirements and award criteria

The procurement process can include the minimum requirements and award criteria in the technical specifications.

The minimum requirement is a lower threshold ("yes" or "no") that all parties must meet. A criterion allows parties to differentiate themselves (better) and

provide additional perspectives for better solutions. To select the best supplier and the best proposal, it is important to define clear minimum requirements and award criteria. The following principles should be considered

- Only essential requirements that are essential for contract performance should be set, avoiding disproportionate requirements that exclude innovative parties.
- Determining the recommended circularity in a way that suits the requested product group, finding out the commonly used measurement methods in this product group. Focusing on the limited number of products in the tender, and requiring the winning supplier to prove the circularity of the remaining products is also recommended.
- Ensuring well-defined targeted criteria (in the selection phase and the award phase) will enable market participants to stand out in areas that are important to the organization. Using too many different standards can make it difficult for all parties to make a difference.

The table below gives an overview of the objectives for the selection and award stages and examples of the corresponding requirements and criteria related to circular economy and circularity.

	Selection Stage	Award Stage
Purpose	Select possible suppliers that ca carry out the project.	Select the best proposal for the client's needs.
Requirements (Yes/No)	• Technical competence • …	Possible requirements are specific to products groups.
Criteria (Good/Better/Best)	• Vision on circular economy. • Achievements regarding circu lar business operation. • Vision on cooperation. • …	• Circularity of a proposal. • Action plan for circular achievements. • Price (including maintenance and take-back) • …

Table 3: Overview of possible requirements and criteria related to circularity. (Source: Copper (2018), Circular Procurement Academy)

The main difference between technical specifications and award criteria is that whereas the former is assessed on a pass/fail basis, award criteria are weighted and scored so that tenders offering better environmental performance can be given higher mark.

○ Variants

Public buyers can allow tenders with "variants": one or more alternative solutions, usually based on alternative technologies or processes, can be provided with an offer that closely matches the technical specifications.

Suppliers can work with traditional "safe" solutions to propose more innovative solutions. Since the results in terms of cost, quality or flexibility may be better than expected, this may attract the attention of public buyers.

Public buyers may even only require variant submissions (which meet the minimum requirements). The use of variants is most effective when combined with functional requirements and reward criteria. These variants allow various solutions to be compared in terms of performance, efficiency, cost-effectiveness, versatility or durability.

○ Life Cycle Costing

In terms of resource efficiency, product tools such as Total Cost of Ownership (TCO) or Life Cycle Cost become important.

Many different backgrounds and disciplines are interested in calculating the best allocation of budgets by estimating the costs incurred throughout the life cycle of products, services, projects, investments, etc.

The main cost categories that can be included in the LCC analysis are related to the following five different life cycle stages: research, development and design; primary production; manufacturing; use and processing.

The awarding phase is not the only relevant moment for using LCC in the procurement. Analysing the whole life cycle cost of a product or service can be useful at different stages:

- At the preparatory stage: to assess the LCC of the current situation.
- Before tendering: to roughly assess different proposals to help guide market engagement activities before tendering, or to narrow down the different technological solutions to be considered.
- During tendering: to compare the LCC and the anticipated CO_2 emissions of different offers, during the evaluation phase.
- After tendering: to evaluate and communicate the improvements of the purchased product in comparison to the current situation and/or other products and to communicate results.

One of the recommendations of the European Commission working group on Life Cycle Costs is to carry out LCC at early design stage, where the opportunities are greatest.

There are many external factors that can affect enormously the outcomes of an LCC analysis:

Figure 14: Factors that affect the Life Cycle Costs

Therefore, the final result of LCC may be highly dependent on these external factors, which are usually not related to the environmental quality of the analysed product or service at all.

The conclusion emphasizes that the final cost (and the resulting LCC results) largely depends on the tax policies of different member states.

When preparing and evaluating the public procurement process, LCC analysis is only one of many elements. Environmental impact and social conditions or innovation may be other issues to be considered in the procurement process.

- **Award criteria and price**

The evaluation of tenders shall be conducted by the evaluation committee based on the lowest price (evaluation price only) or the most economical and most advantageous evaluation price (using cost-effective methods, such as life cycle cost) and technical performance indicated in the contract notice with their relative weighting.

Historically, procurement projects focused on the lowest price. In circular procurement, it is recommended to use the most economical and most advantageous so that circular aspects can be prioritized.

When defining standards, it's necessary to make sure about the correct price-quality ratio. The price citeria should be set around 10-30% and the quality ratio to 70-90%. This allows market players to stand out in terms of quality, which includes high ambitions.

However, if the weight shifts to quality and circularity, there is a risk of increasing prices. To prevent this from happening, it may help to delineate the scope of a solution with clear (financial) conditions. This means it should be considered setting maximum and minimum price, ensuring that price will not be too high. Proposals that exceed the maximum price will not be included in the award of the contract. A minimum price reference may prevent price cutters from winning the

contract by offering a very low price, hoping to win the contract with the lowest quality score.

An additional benefit of using maximum and minimum price is that it allows measuring price performance on an absolute scale. A tender with minimum price gets a maximum score, while a tender with maximum price gets a minimum score, with the other prices on a linear scale between.

In this way, if price differences between tenderers are small, their price scores will not vary widely. However, setting a maximum and a minimum price would require to conduct good market research prior to the tender.

Some tips:

- **Give sufficient weight to quality.**
- **Use circularity criteria in both the selection stage and the award stage.**
- **Make sure to define clearly targeted criteria to ensure market players can distinguish themselves.**
- **Use a measuring method that has been agreed with market players in that sector. Validate this with a market consultation.**

4.2.7 Contracting

After the project is awarded, the agreement must be converted into a contract. This contract formalizes the relationship established in the procurement project. The contract performance clause is used to specify the way the contract must be executed. Environmental considerations can be included in contract performance clauses. At this stage, mutual trust and cooperation is crucial. What consensus is necessary to reach and ensure the functions of the products provided and achieve circular results?

Legal experts must be involved as early as possible in the procurement process, ideas and ambitions in procurement and principles of cooperation applied must be shared with the experts. It must be determinated how to succinctly describe this in a contract establishing the ground for mutual trust between the two parties.

During the implementation phase, the compliance with the contract terms should be carefully monitored, and the responsibility for compliance and reporting should be clearly indicated in the contract. In case of modifications to the contract during its execution, EU regulations shall always be complied. In order to prevent violations of environmental commitments, appropriate sanctions should be stipulated in the contract.

5. CIRCPRO BEST PRACTICES

One of the most important results of the Interreg Europe programme, which aims to strengthen cohesion policy through the exchange of experiences, the transfer of good practices and joint initiatives, is the identification of projects and initiatives that can be classified as good practices and that can be subject to transferability and adaptation to other European regions.

Therefore, it is crucial to identify, at a regional level, initiatives and projects that can be classified as good practices and with replication potential to other regions.

At the moment several good practices were identified and selected to be in the Policy Learning Platform[2]. In the following points some good practices that can be replicated in the region are presented.

5.1 GPP for energy refurbishment of public building promoting recycled & short supply chain materials

ECO-BATI project - funded by Italy/France Interreg ALCOTRA Programme - aims at improving the use of local materials and sustainable construction products in the energy refurbishment of public buildings thanks to the use of GPP.

The objectives of the project were:

- promotion of new green building and energy efficiency models in public buildings;
- boost the use of raw material from local territories (provinces of Cuneo, Imperia and Nice);
- promotion of renewable, recycled/recyclable construction products;
- application of the Green Public Procurement (GPP);

In order to reduce the environmental impact of the public building energy refurbishment works, new GPP models were tested and many actions were implemented by partners, namely:

  - spread environmental certification of local products;
  - development of new tools for Public Authorities (local product catalogue with environmental certification),
  - development of new environmental criteria for GPP;
  - pilot project.

[2] *https://www.interregeurope.eu/circpro/good-practices/?tx_emgoodpractices_goodpracticessearch%5Bpage%5D=0&tx_emgoodpractices_goodpracticessearch%5Baction%5D=index&tx_emgoodpractices_goodpracticessearch%5Bcontroller%5D=Search*

During the project, SMEs were supported by partners to improve their industrial process and to obtain environmental certification and label. Many Public Authorities (PA) were supported to introduce in their public procurement environmental criteria so to improve the use of recycled/local construction products. 2 practices were implemented by the Municipality of Boves and the Chamber of Commerce of Cuneo using GPP tools and criteria developed within ECO-BATI, for energy refurbishment of 2 public buildings

- Evidence of success

End results:

- more than 90% of the construction materials by weight, out of the total used in the two pilot sites, have a supply distance of the entire production process within 150 km from the site;
- more than 15% of the construction material by weight, out of the total used in the two pilot sites, was recycled;
- product catalogue with environmental certification was adopted by Piemonte Region; it has been published in 2 editions and 410 products have been surveyed.

- Difficulties encountered

Now market offers a limited number of construction products with environmental certification/label and often local supply chain isn't completed. Lack of competence could be a strong constraint for GPP implementation, therefore PA, SME, architects, engineers must be supported with training and tools

- Potential for learning or transfer

This initiative could be interesting for other European regions because it allows, on one hand, to limit the environmental impacts of construction sites and, on the other hand, it can encourage the use of local and sustainable products by improving both local environmental and economic conditions.
Common European Directives encourage the use of GPP in Europe, but National Regulations on public procurement could hinder the transfer of successful initiatives developed under the ECO-BATI project to other territories.

5.2 Boosting the construction and demolition recycling market

The Ordinance on construction waste management and use of construction and demolition recycled materials published in 2017 in Bulgaria provides support measures for construction and demolition recycled materials and their incorporation into new construction.

Article 13 of the Ordinance stipulates that the contracting authorities of public works projects financed by public funds shall be responsible for integrating construction and demolition recycled materials, depending on the type of the construction activity as follows:

- at least 2 % for new construction of buildings and facilities;
- at least 10 % for new construction of roads;
- at least 3 % for rehabilitation, overhaul and reconstruction of roads;
- at least 8 % for new construction, reconstruction and major overhaul of other construction of technical infrastructure;
- at least 10 % for new construction of landscaped areas for public or special purpose, including networks and technical infrastructure facilities for their maintenance, amusement sites with permanently attached amusement facilities, outdoor sites for sports and cultural activities;
- at least 12 % for recycling of construction waste in backfills.

- Evidence of success

As a result, from the public procurements conducted in fulfilling the legislative measures for support of the construction and demolition recycled materials, the data for 2018 from the Bulgarian Executive Environment Agency are as follows:

- 37 848.310 tons of construction and demolition recycled materials are incorporated in constructions and
- 2 206 352.258 tons of recovered construction and demolition waste is used for backfilling.

- Difficulties encountered

No major challenges have been encountered.

- Potential for learning or transfer

Since this is a legislative measure to boost the construction and demolition recycling market, it could be very easily transferred in other countries depending on their national legislation and local needs to support this specific market.

5.3 Green criteria in an electronic Procurement Register

In Estonia, all public procurements procedures take place on the electronic platform for public procurement, the Procurement Register. The public procurement register offers an innovative working environment for buyers to organise public procurement and for tenderers to participate in public procurement.

The green public procurement (GPP) is not widely implemented in Estonia for several reasons. One of the most important is lack of experience and knowledge of the procurers about using GPP criteria in tenders. In order to overcome this barrier and support the wider implementation of the GPP, the criteria for GPP are built-in in the new Register, open since October 2018. The environmental criteria available in the Procurement Register are based on the EU GPP criteria. Currently, there are GPP criteria available for four product groups: copy paper, cleaning products and services, furniture, and office IT equipment.

For each product group, there is an easy-to-use dropdown list from where the buyers can choose the criteria they would like to use in each procurement. They can also create their own criteria if needed. This also allows for monitoring of the implementation of GPP, identifying whether all or some built-in or self-made criteria are used in each procurement.

- Evidence of success

Since October 2018 all public procurement is 100% electronic. The uptake of GPP criteria was in the beginning modest but it was related to overall lack of knowledge about the possibilities that the register provides in terms of GPP. However, the usage of green criteria is slowly increasing. The official statistics about GPP in 2019 have not been published yet but based on search on the Register it is clear that GPP numbers have started to grow substantially since November 2019.

- Difficulties encountered

There were technical problems related to the launch of the GPP criteria on the platform. This, however, is being fixed currently. Also, the option of applying the built-in GPP criteria must be well communicated for the procurers to start using the environmental criteria in the Procurement Register.

- Potential for learning or transfer

The barriers of implementing GPP at wider level are similar in different countries. Procurers often don't have knowledge and experience in GPP and they are struggling with choosing the correct criteria. Therefore, procurers need to have access to criteria that are ready to be used in tenders without further adjustments. Such electronic platform with easy-to-use built-in criteria that can be chosen from drop-down lists help to overcome the barriers related to know-how on criteria selection and application in tenders. Such system allows for easy search of tenders and monitoring of the implementation of GPP in a country.

5.4 Circular model of street lighting procurement

The sector of street lighting in Municipalities is the second largest electricity consumer, after the pumping stations. Most of the electric lighting network of Municipalities includes luminaires and lamps, of which most are of old technology with significantly greater energy consumption compared to modern equipments. This fact, combined with the existence and consolidation in the market of new lighting technologies, allows the replacement of old luminaires and lamps with new ones, leading to significant energy saving potential.

Municipality of Alexandroupolis targets saving energy and improving the environment by reducing pollutant emissions in municipal lighting of public spaces and roads. It is worth noting that at the present time, at least 80% of the

illumination of the municipality, in particular the communal areas and roads in the entire territory of the municipality, will be covered.

Thus, the tender for “Saving energy in the municipal lighting with the supply and installation of led lights and the led lamp supply” for 21.918 LED lamps and 3.286 mounting brackets has been issued.

- Evidence of success

Environmental impact: Energy savings of 4.376.824 KW per year and reduction of 4.328,68 tCO2 per year.

Savings: Annual maintenance savings of 190.000€.

Reduction of the time of detection and repair of network failures leading to time and resources - savings. Medium to long-term reduction of the relative costs for the municipality (increased life of materials, existence and uniformity of spare parts – scale economies).

Improve quality of life: Better lighting services of the communal areas

- Difficulties encountered

Requirement for mapping of existing street lamps, lights and pillars from the competent department of the Municipality including geo-coordinates, type, height, lamp tech and power.

- Potential for learning or transfer

The tender utilizes the following:

- Guide for Studies for Improving Energy Efficiency in Road Light for local government bodies;
- Ministerial Decree “Framework of a methodology for measuring and verifying the energy saved to achieve the indicative national energy savings target for end use”;
- Award criteria were based upon the most economically advantageous tender as determined on the basis of costs, using a cost-effectiveness approach with life-cycle costing: Lower weighted investment cost (€/MWh).

Contractor obligations: Supply, transport, installation and delivery in full operation of the materials ready for use, in the positions to be indicated by the municipality, while for the LED lamps, the supply, transport and delivery in a place that will indicate the municipality as well as the 10 years maintenance in a state of proper operation of the products offered. Also, an electronic record of digitally displayed installation locations

5.5 Pre-Commercial Procurement of Nano Bitumen

In Lithuania, circular procurement is yet a poorly established practice and the majority of existing examples are focused on secondary circularity stages such as consumption, waste collection and recycling, rather than ensuring the initial steps of circular economy with lifelong design and durability. A more advanced way to improve this situation and integrate circularity principles in procurement is represented by the good practice of pre-commercial procurement (PCP) of nano bitumen.

The nature of PCP is that the solution must be provided in an innovative, R&D driven way. In order to improve the quality of the roads, Lithuanian Road Administration initiated this type of procurement for bitumen. The aim is to design the longest-lasting road surface. The tender is focusing on materials that would be the most suitable for local climate and, thus, the road would be durable for a longer time without any major repairs. This procurement contributes to a circular economy by promoting the creation of new materials that require less raw materials, have a longer useful life and are easier to maintain.

The main stakeholder of this procurement is the Lithuanian Road Administration. Also, a significant role can be dedicated to scientific institutions and companies which carry out R&D in related area.

With the implemented procurement, the new surface for roads will bring benefits not only for the drivers but also for the government as there will be fewer costs for road repair.

- Evidence of success

The success of the PCP of nano bitumen can be seen from different approaches. Firstly, this procurement enables local scientific potential, uses local resources instead of imported materials (20 % decreased costs), and creates 40 additional workplaces. Secondly, the features of new bitumen allow avoiding frequent road repairs (around 60 % less repairs needed) and damage to cars (saving up to 8 MEUR per year).

- Difficulties encountered

The main challenge is to clearly define circular aspects for tender criteria. It must be noted that the criteria should be easily and equally understandable, and should aim for the most efficient result.

- Potential for learning or transfer

The tender of this procurement serves as a good example because it aims at enabling the use of local resources and create the most durable road covering which would have much longer lifetime compared to current alternatives. Thus, similar criteria could be applied in other procurement related to the use of road covering. The inclusion of circularity into the tender with a prospect of extended

life-cycle and customization of the product can generally be applied to the majority of procurement cases which are related to the creation of new products.

This procurement is financed under policy measure "Pre-commercial procurement LT" which can be used as an effective way to connect circular economy and public procurement.

For future learning, adequate preparatory work with potential suppliers is critical. Due to the procurement specificity the number of offers is low. Market consultation and dialogue would help to attract relevant stakeholders and increase overall cooperation.

5.6 Procurement Specialist Services & Change Agent for Sustainable and Innovative Public Procurement

Kouvola City Strategy emphasizes the growth of local welfare and vitality and sets a target for Kouvola to become carbon neutral by 2040. Bio&circular economy and public procurement are key aspects to achieve these goals. City of Kouvola has formulated a specific procurement guidance for its contracting entities. Together, these strategic guidelines, within the framework of procurement legislation naturally, instruct to take into consideration sustainability, local production, innovativeness, employment, energy efficiency and environmental impacts when planning and executing procurements. Ultimate goal is to shift the focus from the tendering phase into procurement preparation and planning, contract management and impact measuring, and to get local SMEs better involved into competitive bidding.

Systematic consideration of sustainability and circularity in procurements is quite a new concept, hence new mindset and capacity building is needed. By providing free of charge procurement consultation for public procurers and suppliers (informing businesses about the forthcoming procurements, targeted training e.g. on utilizing the sustainability and circularity criteria, helping in drawing up tendering documents, assisting in the formulation of calls for offers), bringing in new practices, participating into developing procurement strategy and promoting dialogue between the procurers and suppliers by organizing market consultations, Procurement Specialist has a crucial role.

- Evidence of success

By April 2019, 23 market consultations were organised, >2300 procurement consultations were made and with trainings included, 650 SMEs were impacted. Procurement Specialist Service is now a permanent service. In fall 2019 the Service was further strengthened by “Change Agent” function that belongs to a novel nation-wide procurement expertise network KEINO that provides regional operators novel tools for developing, managing and measuring sustainable, innovative and circular public procurement.

- Difficulties encountered

Resistance to change, matching conflicting interests when planning procurements (e.g. price vs. quality; what type of impacts are sought after etc.), level of purchasing expertise, how procurement procedures are strategically managed, implemented and their impacts monitored.

- Potential for learning or transfer

Procurement Specialist Service with specific Change Agent function provides good basis for creating dialogue between operators (procurers, suppliers) and developing local public procurement practices already from the planning stage. Its strength relies in the nation-wide networks that provide tools, support and chance to exchange information among the specialist/agent networks and the operators involved.

Procurement Specialist supports the operators during the whole life cycle of the procurement process, acts as a two-way information and capacity building linkage between the purchasers and markets, influences on attitudes, encourages to implement novel practices and participates to developing City's strategic management of procurements. Change Agent function complements this Service by providing further expertise and capacity building measures (tools, training etc.) for developing the procurement competence and practices towards more sustainable, innovative and circular.

6. CONCLUSION

Researches show that procurers from different case studies identified the following relevant aspects:

- market engagement to ensure transparency and the confidence of suppliers, and to understand the potential challenges of certain solutions;
- identification of priorities and principles to be clarified at the beginning of the procurement;
- engagement of technical and environmental experts for identifying the right approach and choosing the right solutions;
- subdivision of the tender into the lots to promote accessibility to small and medium-sized enterprises sometimes can be tricky and have an opposite result;
- complexity of the sector to structure the tender on the basis of a needs.

The solutions and recommendations on how to meet, overcome and/or mitigate obstacles are provided in the previous chapters through step by step guidance on how to implement CP, how to increase the circularity of companies and boost their participation in CP.

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