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GPP2ADRION

Activity 1.1:

ANALYSIS OF EU GPP CRITERIA: OPPORTUNITIES AND CHALLENGES FOR CIRCULAR ECONOMY

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1. Introduction

This report examines the GPP instrument defined at the European level, with a specific focus on the criteria established within it. Additionally, the study offers a critical analysis of the role of GPP in promoting sustainable procurement and its alignment with the principles of the Circular Economy
Indeed, given the significant influence of public administration purchasing, GPP has the potential not only to reduce environmental impacts but also to steer markets toward circularity and sustainable innovation. Through this analysis, the report identifies the strengths and limitations of GPP criteria in supporting CE goals, providing a foundational knowledge base for the next steps in the GPP2ADRION project.

1.1 The project: GPP2ADRION

The project GPP2ADRION addresses the challenge of the lack of common understanding and knowledge of ADRION countries on GPP and to consistently boost circular economy transition in the Area. The overall objective of GPP2ADRION is to overcome this limit through the development and adoption of macro-regional solutions to create a common knowledge base within EUSAIR countries and boost the demand and offer of CE products and services. These can be achieved only through a transnational approach that will align different countries on the same GPP level of knowledge.
The lack of homogeneity as regards the contents of the protocols, the different state of implementation and mandatory or voluntary nature of GPP procedures, affect SMEs that encounter difficulties in accessing ADRION countries public procurement market. Moreover, the aforementioned companies often do not have access to expert knowledge, which can make them competitive within transnational markets
GPP2ADRION aims to incentivize the adoption of Green Public Procurement (GPP), which is a voluntary instrument, able to influence the market. By promoting and using GPP, public authorities can provide industry with real incentives for developing green technologies and products commanding, in some sectors, a significant share of the market (e.g., public transport and construction, health services and education). Through the ecological evaluation of the purchasing procedures, the Public Administration (PA) has in fact the possibility of "selecting those products and services that have a low or reduced environmental impact compared to other products and services used for the same purpose", driving a circular demand also outside the public sector.
In addition, GPP2ADRION aims to create a network able to mitigate the serious lack of institutional coordination and efficiency, implementing innovative activities, through the GPP, being a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured. Since public authorities are among the major consumers in Europe, by using their purchasing power to choose goods and services with lower impacts on the environment, they can make an important contribution to sustainable consumption and production. Green purchasing is also about influencing the market. By promoting and using GPP, public authorities can provide industry with real incentives for developing green technologies and products.

2. Methodology

This report aims to analyze the European Green Public Procurement (GPP) criteria, evaluating their role in supporting the Circular Economy (CE) and identifying potential challenges and opportunities. The analysis was conducted through a structured approach encompassing both a comprehensive examination of the GPP framework and a targeted assessment of specific criteria, particularly in terms of their alignment with circular economic principles. The core focus was to assess the extent to which GPP criteria act as enablers of circularity, while also identifying any existing barriers to their effective integration within CE objectives. Additionally, the objective was to set the level of awareness around GPP and establish the fundamental criteria knowledge necessary for the next steps of the project.

The research approach began with a comprehensive review of the GPP framework, examining its definition, intended objectives, and the regulatory landscape established by the EU. Following this, the analysis focused on the structure of the GPP criteria, specifically identifying the product categories for which these criteria are developed and assessing how they are adopted across different project countries. This part of the study relied on a review of EU guidelines and regulations on GPP.

A subsequent critical analysis assessed the alignment of GPP criteria with Circular Economy (CE) principles, exploring both the supportive elements and the limitations these criteria may introduce for circular procurement. This phase included a detailed literature review, covering relevant EU publications and academic sources, to highlight the opportunities and challenges GPP criteria present in advancing circularity.

2.2 Key Definitions

To ensure clarity throughout this report, key terms and concepts that will be referenced are defined as follows:

1. *Green Public Procurement (GPP)*
   Defined by the European Commission's Communication (COM -2008-400) as "a process whereby public authorities seek to procure goods, services, and works with a reduced environmental impact throughout their life cycle compared to goods, services, and works with the same primary function that would otherwise be procured."

2. *GPP Criteria*
   Although a unified definition is not provided for GPP criteria as a whole, the EU has developed voluntary criteria across various product categories, intended to be incorporated into public procurement processes.

1. *Circular Public Procurement (CPP)*
   The European Commission defines CPP as "the process by which public authorities purchase works, goods, or services that contribute to closing energy and material loops within supply chains, while minimizing and ideally avoiding negative environmental impacts and waste creation throughout their life cycle" (European Commission, 2017).

2. *Circular Economy (CE)*
   According to the EU Circular Economy Action Plan, CE is "an economic model in

which the value of products, materials, and resources is maintained in the economy for as long as possible, and the generation of waste is minimized." This concept is underpinned by two essential frameworks: (i) the Butterfly Diagram by the Ellen MacArthur Foundation, which divides CE into biological and technical cycles, with GPP criteria relevant to both. (ii) The 10R Framework for Circular Strategies, encompassing strategies such as R0 Refuse, R1 Rethink, R2 Reduce, R3 Reuse, R4 Repair, R5 Refurbish, R6 Remanufacture, R7 Repurpose, R8 Recycle, and R9 Recover, which provide structured approach for implementing CE principles.

3. The GPP instrument

Green Public Procurement (GPP) is a strategy through which public administrations in Europe prioritize the procurement of goods, services, and works with reduced environmental impact. Defined in the European Commission's Communication (COM-2008-400), "Public Procurement for a Better Environment," GPP is described as "a process whereby public authorities seek to procure goods, services, and works with a reduced environmental impact throughout their life cycle compared to goods, services, and works with the same primary function."
By incorporating environmental criteria into procurement decisions, GPP plays a critical role in minimizing the environmental footprint of public procurement processes, promoting sustainability in both production and consumption (European Commission, "GPP Training Toolkit"). Indeed. public administrations hold significant economic influence, with European public procurement spending estimated at 1.8 trillion euros annually, approximately 14% of the EU's GDP (European Commission, "GPP Training Toolkit"). This purchasing power enables public authorities to drive markets toward sustainable practices, supporting a shift to a more sustainable economy. Public procurement encompasses a wide array of goods and services, including computers, furniture, electricity, catering, building renovations, and transportation, representing around 5-15% of the market share, with even higher percentages in certain sectors. Redirecting this purchasing power to sustainable options can significantly reduce environmental impacts, foster eco-friendly market trends, and stimulate innovation in sustainable production.

Specifically, the impact of GPP on environmental outcomes can be observed in two main ways. On the direct impact side, GPP enhances the environmental performance of goods, services, and works through specific green criteria. This allows public administrations to actively reduce the ecological footprint associated with each purchase. Additionally, there is an indirect impact where the purchasing power of public bodies encourages suppliers to adopt cleaner, more sustainable practices. By fostering the adoption of green standards, GPP helps set higher benchmarks for environmental responsibility in the market, extending benefits beyond the realm of public procurement.
When examining GPP's objectives, three main perspectives emerge that clarify the tool's broader contributions: (i) *Environmental Objectives*: reducing environmental impacts, promoting sustainable consumption, minimizing hazardous substances, conserving resources (especially energy), and reducing waste. (ii) *Public Administration Perspective*: enhancing the public administration's image, optimizing public spending, improving procurement skills, and integrating environmental concerns across policies. (iii) *Business*

Perspective: supporting competitiveness, encouraging innovation, and improving enterprise competitiveness.

GPP as a strategic tool, is defined at EU level and its current framework is defined through three key elements that's support its adoption and development:

1. *2008 GPP Communication (COM-2008-400):* Sets out guidelines for promoting environmentally sustainable procurement.
2. *Revised Public Procurement Directives (2014/23/EU, 2014/24/EU, 2014/25/EU):* Allow public administrations to incorporate environmental criteria and life cycle assessments in procurement, aiming to harmonize procedures across EU Member States.
3. *2020 Circular Economy Action Plan:* Emphasizes GPP's role in transitioning to a circular economy by creating demand for circular products and services.

Although GPP remains voluntary, the European Union strongly encourages its adoption.

Some Member States, such as Italy with its National Action Plan on Green Public Procurement (PAN GPP), have even made green criteria mandatory for specific sectors and products. Additionally, the European Commission has developed voluntary GPP criteria for various product groups, and under the 2020 Circular Economy Action Plan, it aims to implement minimum mandatory GPP criteria and reporting requirements to monitor progress.

In conclusion, despite GPP's many positive aspects, certain challenges remain, including limited environmental criteria for products, insufficient life cycle cost information, low awareness of eco-friendly benefits, legal uncertainties on including environmental criteria in tenders, limited political support, and a lack of best-practice exchange between regions (COM-2008-400). These factors present notable barriers to GPP's broader adoption and implementation.

4.The EU criteria

The GPP criteria are based on defined, verifiable environmental standards that rely on scientific data and a life-cycle approach, taking into account all stages from production to disposal.
The European Commission has defined over 20 standard GPP criteria, which are revised on a regular basis to reflect technological improvements, market situations, and scientific evidence. Priority sectors for GPP are chosen based on the potential for environmental improvement, governmental investment levels, and market availability.
Although GPP criteria offers an outline for sustainable procurement, EU member states can choose whether to implement it. This means that each member state has the option of implementing GPP criteria and requirements to varying degrees. As a result, the application of GPP varies by country. In some countries, it has fully integrated green criteria into all public procurement processes (e.g., the Netherlands), whereas others have made limited progress.

4.1 Context and legal framework / regulations

The integration of the GPP Criteria into Public Procurement (PP) processes is a key focus of the EU's efforts to encourage sustainable public procurement. The debate focuses on how criteria may serve as the framework for public procurement processes that promote environmentally friendly goods and services. There are some significant aspects from ongoing talks and actions in the EU about integration of GPP criteria and its role in improving sustainability.
The European Commission is aiming to further align GPP criteria to ensure that sustainability standards are applied consistently across the EU. By incorporating the criteria into the PP framework, it will lead to increased demand for greener products, influence market behavior, and incentivize enterprises to achieve these environmental criteria. The EU has developed sector-specific GPP standards (for construction, ICT, and transportation, etc.) for easier implementation. This strategy assists public entities in procuring environmentally friendly items and services by utilizing GPP criteria as standardized norms.

The legal framework for GPP is principally defined by the Public Procurement Directives, specifically the 2014 directives that replaced prior laws.

Public Procurement Directives that regulate the GPP are the following:

- **Directive 2014/24/EU**: It allows contracting authorities to incorporate environmental considerations into various stages of procurement, including technical specifications and award criteria.
- **Directive 2014/25/EU**: It focuses on procurement in the utilities sector, allowing similar environmental considerations.
- **Circular Economy Action Plan (CEAP**) offers a road map for transforming the EU into a more sustainable and circular economy. GPP is included in this plan through the promotion of goods and services that support circularity, like those composed of recycled materials or created with simple reuse and recycling in mind.

4.2 List of criteria

The GPP criteria for several industries are established to promote sustainability in public procurement and manufacturing. While these requirements differ according on the sector and product, here's a general outline of GPP criteria used in various significant domains:

- Criteria for Computers, monitors, tablets and smartphones
- Criteria for Data centers, server rooms and cloud services
- Criteria for Electricity
- Criteria for Food, catering services and vending machines
- Criteria for Imaging equipment, consumables and print
- Criteria for Furniture
- Criteria for Indoor cleaning services
- Criteria for Office Building Design, Construction and Management
- Criteria for Paints, varnishes and road marking
- Criteria for Public space maintenance
- Criteria for Road lighting and traffic signals
- Criteria for Road transport
- Criteria for Textiles products and services

- Criteria for Road Design, Construction and Maintenance

4.3 Structure of criteria and their implementation

The GPPP criteria are structured to ensure a comprehensive approach to sustainable public procurement, encompassing various aspects of a tenderer's qualifications, product specifications, and contract execution. The criteria can be categorized into four main groups:

1. *Selection Criteria (SC):*
   These criteria focus on the tenderer (the company bidding for the contract) rather than the product being procured. They assess the company's ability to perform the professional activity, its economic and financial standing, and its technical and professional capacity. For services and works contracts, these criteria may also include the company's ability to implement environmental management measures during contract execution.

2. *Technical Specifications (TS):*
   These specifications outline the minimum compliance requirements that all bids must meet. They are directly linked to the subject matter of the contract, which may involve goods, services, or works. Requirements can pertain to any stage of the product's life cycle, including the supply chain, even if those aspects are not visible in the final product. Offers failing to meet these technical specifications are rejected, as they serve as pass/fail requirements rather than being scored for award purposes.

3. *Award Criteria (AC):*
   At this stage, the contracting authority evaluates the quality of the bids and compares costs. Contracts are awarded based on the Most Economically Advantageous Tender (MEAT), which considers both cost and other factors such as environmental aspects. Award criteria may relate to product characteristics or the execution of services or works, with commitments monitored during the contract's performance. Like technical specifications, award criteria must be relevant to the contract's subject matter.

4. *Contract Performance Clauses (CPC):*
   These clauses specify the requirements for carrying out the contract. Similar to technical specifications and award criteria, they must be associated with the contract's subject matter and can cover any stage of the product's life cycle, including the supply chain. Compliance with these clauses is monitored throughout the contract's execution, not during the bidding process, and may be linked to penalties or bonuses to ensure adherence.

For each criterion, contracting authorities can select from two levels of environmental ambition, tailored to their specific goals and constraints. Core Criteria are designed for straightforward GPP application, focusing on key areas of environmental performance while minimizing administrative costs for companies. Comprehensive Criteria consider more aspects or higher levels of environmental performance, suited for authorities aiming to support broader environmental and innovation objectives.

5. GPP and Circular Economy

As the global community confronts escalating environmental challenges, the integration of sustainable practices into public procurement has gained unprecedented importance. Green Public Procurement (GPP) is increasingly recognized as a strategic tool that enables governments to reduce their ecological footprint while simultaneously stimulating demand for sustainable goods and services.
This chapter seeks to critically examine the relationship between GPP and the circular economy, exploring the ways in which GPP application might support circular behaviors and identify possible barriers that prevent circularity.
To fully understand this dynamic, it is essential to first define the key concept of Circular Economy (EC).
Although various definitions of Circular Economy exist depending on the perspective, the one provided by the European Commission defines Circular Economy as “an economic model that aims to eliminate waste and promote the continual use of resources. This approach entails maintaining the value of products, materials, and resources in the economy for as long as possible, while minimizing the environmental impact” (European Commission, 2020). According to this definition, the new economic model shifts from a linear approach of production and consumption to a circular approach where value is retained by closing product and material loops. One of the key drivers to support circular economy models is green public procurement (GPP), as it promotes the development and dissemination of innovative solutions in materials, product design, and services. These solutions aim to extend the useful life of goods, reintegrate them into production cycles in the most efficient way, minimize waste, and reduce externalities, including the presence and emissions of hazardous substances and energy use. The green public procurement tool effectively supports the transition towards a circular economy model, both at the microeconomic and macroeconomic levels, through coherent and synergistic procurement practices. However, the potential of the GPP to support the circular economy is not yet fully understood and exploited (Wijayasundara, M. et al. 2022).

5.1 GPP contribution to Circular Economy

According to the European Commission, over 250,000 public authorities in the EU spend approximately 14% of GDP annually on public procurement, totaling around €1.9 trillion (European Commission, "GPP Training Toolkit"). Public procurement plays a critical role in accelerating the transition to a circular economy (CE) by influencing how goods, services, and works are acquired at the national level. Green Public Procurement (GPP) is a strategic tool that allows public authorities to support this transition by embedding environmental considerations into procurement processes.
The adoption of GPP promotes circularity across the value chain—from product design to use and final disposal—contributing to resource efficiency and waste minimization across multiple sectors. To understand how GPP fosters CE, it is useful to distinguish two phases: (1) pre-procurement, where the focus is on evaluating the necessity of purchases, and (2) procurement execution, where environmental criteria guide the selection of goods and services

5.1.1 Pre-procurement: the need assessment

Green Public Procurement is not solely about acquiring environmentally friendly goods or services; it is also about reducing the overall impact of public procurement and in this sense the EU commission emphasizes the importance of conducting an effective needs assessment, as the most effective way to achieve a reduction of environmental impacts is by decreasing the demand for products, services, and works. A need assessment should be the first stage in the GPP procurement cycle (European Commission, 2020), preceding the tender process, and serves as a critical step in minimizing unnecessary purchases and resource use, as shown in figure below.

Figure 1 Steps in the procurement processes

The need assessment serves two key functions: (1) determining whether the procurement is necessary and (2) evaluating the actual demand for goods and services, allowing for more efficient procurement decisions. By assessing needs upfront, public authorities can avoid unnecessary spending and resource consumption, aligning procurement with CE principles.

This stage may require a cultural shift within organizations, moving from a focus on the number of units purchased to a broader consideration of how needs can be met sustainably. The European Commission's GPP Toolkit highlights several key steps in this pre-procurement process:

1. **User Consultation**:
   Prior to procurement, it is essential to consult users to ensure that purchases meet actual needs. This consultation can be conducted through surveys, analysis of existing usage patterns, and stakeholder engagement. It should continue throughout the tendering process, ensuring that evolving requirements are addressed.
2. **Clarification of the Procurement Reason**:
   Before launching a tender, alternative options should be considered. These may include sharing resources within or across organizations, repairing or upgrading

existing items, or opting for leasing rather than purchasing. Once alternatives have been evaluated, the reason for purchase should be clearly identified.

3. **Defining the Subject Matter and Quantity**:
   A well-defined need assessment helps in specifying what exactly needs to be purchased and in what quantity. This is important because the scope of the procurement determines the applicable GPP criteria. Estimating realistic quantities is equally important to avoid over-purchasing and to minimize waste, whether in the case of goods, services, or works.
4. **Joint Procurement**:
   Public authorities may also consider joint procurement, where multiple entities collaborate to purchase goods or services. This can signal stronger demand to the market, encouraging suppliers to invest in greener production processes and certifications, ultimately advancing CE goals.
5. **Flexible Contracts**:
   To avoid the environmental impact of over-procurement, contracts should not lock the procuring authority into rigid volume commitments. Contracts must remain flexible to adjust to changing needs in terms of volume, frequency, and duration, ensuring that resources are used efficiently and waste is minimized.

By performing a guided need assessment, public authorities can make informed decisions on whether to proceed with a procurement. If a tender is launched, it will be aligned with actual needs, avoiding unnecessary purchases and maximizing resource efficiency. Joint procurement strategies and flexible contracts further support CE by optimizing resource use and reducing waste.
This approach integrates CE principles into pre-procurement by reflecting the first two steps of the waste hierarchy defined in CE frameworks: Avoidance (re-evaluating the need for purchasing and eliminating waste at the source) and Reduction (purchasing only what is necessary, thereby reducing material consumption).

Once the procurement is defined and the needs assessment completed, Green Public Procurement (GPP) integrates the principles of the Circular Economy (CE) primarily through the application of environmental criteria. These criteria are designed to minimize the environmental impact of goods, services, and works throughout their life cycle, while promoting resource efficiency, waste reduction, and the development of sustainable business models.
The application of CE principles is reflected in various aspects of the GPP environmental criteria.
Generally, how the criteria foster CE is summarized in the following categories:

1. *End-of-life management and waste minimization*
   A key aspect of CE integration in GPP is the effective management of product end-of-life. Environmental criteria may require suppliers to implement take-back schemes or ensure that products are easily recyclable. These criteria promote the concept of extended producer responsibility, where manufacturers remain accountable for their products even after sale, ensuring that valuable materials are recovered and reintroduced into the production cycle. Public authorities can

include clauses requiring suppliers to take back used goods, such as electronics or packaging materials, for reconditioning or recycling.

2. *Sustainable design and recycled content*
   Several GPP criteria adopt a life-cycle perspective, prioritizing products designed for durability, repairability, and upgradability. By focusing on products with a lower environmental impact throughout their entire life cycle, GPP aligns with the CE objective of closing material loops. Specific criteria address product design for disassembly or for extending product life, facilitating reuse and recycling. GPP environmental criteria often include provisions that favor goods designed for modularity, repairability, and component standardization, aiming to increase product longevity. Additionally, specific criteria may mandate minimum percentages of recycled materials in the products purchased, supporting the recycling industry.

3. *Reduction of hazardous substances and pollution prevention*
   GPP criteria frequently impose limits on the use of hazardous materials, in line with the CE goal of reducing toxic inputs into the environment. By setting stringent requirements to avoid harmful chemicals and pollutants in production processes, GPP contributes to cleaner production cycles and supports material loops that ensure products are safe for both humans and ecosystems.

4. *Promotion of circular business models*
   GPP criteria extend beyond products to services, encouraging suppliers to adopt circular business models, such as product-as-a-service or leasing agreements. This shifts the focus from ownership to access and shared use, promoting more efficient resource management and extending the useful life of products.

5. *Energy efficiency and low-carbon procurement*
   Many GPP criteria emphasize energy efficiency and carbon reduction, both key elements of the CE. By prioritizing products and services that consume less energy during production and use, GPP helps reduce the overall carbon footprint of public procurement.

In conclusion, GPP integrates Circular Economy principles through its environmental criteria, promoting life-cycle thinking, resource efficiency, sustainable design, circular business models, pollution prevention, and effective end-of-life management. These criteria not only reduce the environmental impact of public procurement but also drive market transformation toward circular solutions, aligning procurement practices with the broader CE goals of resource conservation, waste minimization, and sustainability.

5.2 Limits and Potential Barriers

The importance of Green Public Procurement (GPP) within the circular economy is increasingly evident. In recent years, the European Commission has promoted numerous initiatives to encourage the development of GPP, recognizing its key role in driving the transition toward more sustainable practices. However, the full potential of GPP in

supporting a more circular economic model remains largely untapped. Several limitations and barriers continue to limit its efficacy in completely incorporating circularity.
The literature on GPP and circularity is still relatively limited, but various studies have begun to explore the factors slowing down the adoption of green public procurement adoption. It has become clear that GPP provides tools capable of promoting circularity, but in many cases, it is the practical implementation of GPP itself that presents the main obstacle. Among the main difficulties public authorities (PAs) face in adopting GPP practices are the lack of organizational and political resources, as well as insufficient information about the real environmental impacts of products. Furthermore, challenges include finding suitable suppliers, preparing compliant tender documents, and dealing with the absence of clear guidelines from central authorities (Testa et al., 2014; Bouwer et al., 2006; Thomson and Jackson, 2007; Walker and Brammer, 2009). Insufficient cooperation among public authorities further exacerbates the situation.
A study by Brammer and Walker (2011) proposed a useful conceptual framework to understand the factors influencing the actual implementation of GPP. The authors identified four key elements: (i) the perception of the costs and benefits of GPP policies, (ii) the availability of green products and services on the market, (iii) internal organizational pressures, and (iv) "familiarity" with the policies themselves. In particular, the last point is crucial: including environmental criteria in public tenders requires specific technical skills, which are often lacking among public procurement officers (Zhu et al., 2013). The lack of complete information and comprehensive knowledge is a common obstacle in many decision-making processes, and GPP is no exception (Testa et al., 2014).
The literature also highlights the importance of GPP toolkits and documents in promoting the adoption of these practices. Several studies have pointed out that strengthening and expanding these tools could significantly enhance the effectiveness of GPP, making it easier for public authorities to apply sustainability criteria in their procurement processes (Testa et al., 2014). Another important factor is the training of public procurement staff: while a lack of training is often seen as one of the main barriers to GPP, it can also represent an opportunity to encourage the adoption of more sustainable practices. Enhancing skills and know-how in this area could be crucial for accelerating the transition towards more sustainable and circular public procurement models.

In conclusion, a crucial barrier to the support of GPP in fostering circularity is the lack of awareness regarding both of these topics and the lack of training within public administrations to efficiently implement these practices.
However, the lack of awareness which hinders GPP implementation doesn't regard only public officials and public institutions. Businesses are often not aware of GPP procedures, their existence and benefits, in some cases even though the awareness is present, businesses are discouraged due to the complexity and bureaucracy of public procurement processes. Thus, rendering GPP more "business friendly" and promoting awareness and capacity building in the business community would be beneficial to increasing GPP implementation.
An additional challenge for the implementation of GPP and CPP is the readiness of the business community and market. On one hand, there is a technological barrier in certain sectors and products, while on the other circular products and services are not consolidated enough to provide public procurement in a manner. Not all circular markets

and products are mature enough to meet industrial standards, however, public procurement can offer businesses a security line by creating demand that nurtures a pro-circular environment.
Furthermore, measuring circularity can become a challenge due to the lack of standardization in the field, and in some cases in the Adrion macro-region, countries lack not only the regulatory framework to address CPP but also the monitoring, traceability, standardization and data collection framework to address the measurement of environmental impacts of a product's life cycle and the circularity of a product or service.It is important to highlight that the GPP tool was originally designed to encourage the purchase of goods, services, and works that minimize environmental impact throughout their life cycle. This means that while its structure and certain criteria do support the circular economy, the latter is not the primary focus of the GPP tool. In fact, GPP often focuses on the immediate environmental impact and the 'green' technical requirements of products. It includes environmental criteria covering various aspects, such as energy efficiency, the reduction of hazardous substances, and CO2 emissions, but it is not primarily aimed at being a tool specifically targeted toward circularity, promoting models with an explicit emphasis on reuse, repair, recycling, and the extension of product life cycles.

In summary, GPP is a tool aimed at minimizing the environmental impact of products and services, not necessarily at promoting their circularity. As a result, circular economy concepts are integrated into the GPP framework, but they are not its central focus. In this regard, another tool has been developed with the specific goal of promoting circularity: Circular Public Procurement (CPP). The CPP addresses the gaps in GPP and promotes the procurement of goods and services that are inherently circular, highlighting the long-term management of materials. The concept of CPP will be explained in detail in the next paragraph.

5.3 Circular Public Procurement

Circular procurement is an approach designed to greening procurement further, recognizing the role that public authorities can play in supporting the transition towards a circular economy by creating a demand for circular products and services, thus enabling circular business markets. The European Commission defines circular procurement as "the process by which public authorities purchase works, goods, or services that contribute to closing energy and material loops within supply chains, while minimizing, and ideally avoiding, negative environmental impacts and waste creation throughout their who le life cycle" (European Commission, 2017, *Public Procurement for a Circular Economy*).
The circular economy is a systems solution framework. As the definition makes clear, circular procurement is a concept that enhances, GPP, it goes beyond simply minimizing environmental impacts by prioritizing circular products and services, and circular models that contribute to closing resource loops
In many respects, the procurement cycle mirrors the waste hierarchy, as shown in the figure below. Therefore, the greatest opportunities to reduce environmental impacts and maximize economic benefits (European Commission, *GPP Training Toolkit*) arise from integrating circular strategies.

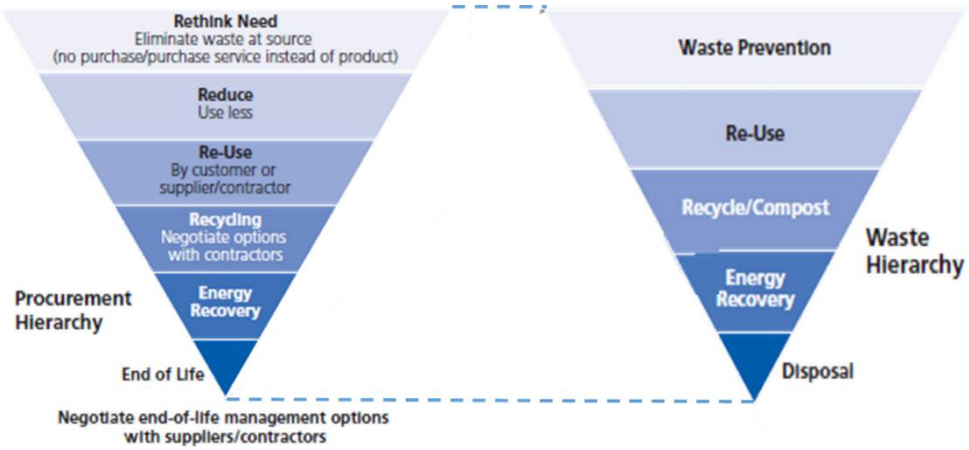

Figure 2 Procurement hierarchy mirroring waste hierarchy

The process begins with waste prevention, as challenging the need for new products can also encourage adopting alternative, more circular models to traditional ownership. The need to innovate in how we produce, use, and dispose of products has become critical, given our diminishing global resources.
The next step is designing products for circularity and extending their life for as long as possible so that resources and produced value stay in our economies for as long as possible. This encourages markets for secondary materials, integrating remanufacturing and refurbishing practices, enabling reuse, recycling, reverse logistics, and minimizing waste production. Additionally, public authorities can procure products as a service by tapping into leasing and sharing business models of the circular economy, thus reducing the rate of product consumption while guaranteeing service providing.
Circular procurement is only possible through a collaborative approach that looks up to the whole life cyle of a product or service and considers the entire value chain. Thus, it involves engaging all stakeholders in the procurement cycle considering the whole-life consequences of their purchasing decisions. This includes not only businesses along the value chain but also public authorities, clients, stakeholders. Market analysis and engagement is crucial, not only for assessing the market's current capacity to deliver circular solutions but also for evaluating its future potential, and thus providing the conditions that can meet the local circular business ecosystem with coherent and fostering opportunities over time.

Currently, CPP is not legally binding at the European Union level or in most member states. Rather, it is positioned as a best practice supported by guidelines and recommendations within broader circular economy strategies. In some EU member states, such as the Netherlands and Sweden, CPP has been integrated into sustainable public procurement policies, demonstrating clear benefits. In the Adrion macro-region, CPP has been promoted by the Circular economy Roadmaps of Slovenia, Montenegro, and although not part of the region.

6. GPP in project countries

As part of the investigation of GPP instrument, it is important to analyze the situation in each country that is part of the project consortium, in order to provide a clearer picture of the situation of GPP in each country and where each country stands in terms of Circular Economy principles within the GPP framework. Each of the partners contributed by providing important information about GPP in their respective countries, what is the current legal framework regarding PP in general and GPP in particular.
The following sections of this chapter offer a more detailed perspective on GPP in partner countries. However, it is important to emphasize that this document is neither the final state-of-the-art activity output nor the result of a gap analysis. Rather, it is a preliminary document intended to gather foundational information about the situation in each project country, serving as a starting point for the subsequent activities.

6.1 Partner questionnaire

A systematic questionnaire was used to evaluate the implementation of Green Public Procurement (GPP) and at which extent Circular Economy principle are incorporated in the criteria, in the seven project countries: Italy, Slovenia, Serbia, Montenegro, Bosnia & Herzegovina, North Macedonia, and Greece. GPP adoption rates, circular economy (CE) tenets, product specifications, and significant obstacles found in each nation are all covered in the report.
The purpose of the questionnaire was to:

- Assess the current state of GPP implementation in project countries.
- Identify the adoption of Circular Economy principles.
- Map GPP product criteria and analyze implementation gaps.
- Highlight barriers hindering GPP execution.
- Gather foundational information about the situation in each project country, serving as a starting point for the subsequent activities.

The methodology used to collect the data was as follow:

a. Structuring the questionnaire to be submitted to the Project Partners
b. Collect the data from the seven Project Partners across the participating countries (to date only one PP hasn't replied: PP4 Greece)
c. Analyze the results of the questionnaire and present them divided into the 4 sections:
    1. General Information
    2. Adoption of CE Principles
    3. GPP Criteria for Products and Services
    4. Barriers to Implementation
d. Identification of common trends, gaps, and barriers.

6.2 Questionnaire results

General Information

The table below summarizes the presence of national plans, GPP mandates, responsible authorities, and training programs for public officials in partner countries, based on the received results (and through EU published documentation)

- In all of the Partner Countries there are national plans/strategies regarding Public Procurement. However, not all countries have a national plan regarding GPP.

Project Partner	Country	Is there a national plan or strategy for PP?	Description	Validity period	Is GPP mandatory ?	Additional Notes	Who is responsible for GPP policy?	Are capacitation programmes for public officials in place?
PP1 & PP2	Italy	✓	GPP National Plan	Adopted in 2008. No terms of validity	✓	GPP NAP is mandatory for all kind of contracting authorities, for the whole value of the tender,	Ministry of Environment - Ministero della Transizione Ecologica	✓
PP3 & PP9	Montenegro	✓	Strategy for the improvement of public procurement policy and public-private partnership	2021-2025	✗	n/a	Ministry of Finance is responsible for public procurements	✓
PP4	Greece	✓	GPP National Action Plan	2021-2024	✓	It is mandatory for e specific procurement categories. It is compulsary for 8 categories, while non-compulsary for 7 other categories.	The General Directorate for Public Procurement; Ministry of Development and Investments - General Secretariat for Commerce and Consumer Protection; Ministry of Environment and Energy; Ministry of Infrastructure and Transportation; Hellenic Single Public Procurement Authority – HSPPA; Ministry of the Interior	✓
PP5	Slovenia	✓	Public Procurement Law; Regulation on green public		✓	Yes, for 22 items, following the EU GPP Policy framework	Ministry of Public Affairs and Ministry of the Environment	✓
PP6	Serbia	✓	National plan for development of public procurement	2024-2028	✗	n/a	No public bodies directly deal with GPP Policies	✗
PP7	Bosnia and Herzegovina	✓	Public Procurement Strategy in Bosnia and Herzegovina	2024 – 2028	✗	Contracting authorities are not obliged to include green criteria in public procurement procedures, except in cases where this is explicitly prescribed by certain material regulations in connection with specific procurement.	The Council of Ministers - The Public Procurement Agency - The Public Review Body	✗
PP8	North Macedonia	✓	Strategy for improving the public procurement system	2022-2026	✗	Public procurement authorities have to have in mind the environmental impact while conducting PP procedures but nothing specifically in terms of CE is obliged.	No public bodies directly deal with GPP Policies	✗

- Only in two partner countries (Italy and Slovenia), GPP is mandatory, whereas in the rest of the countries, this is not the case.
- The program for capacity building of public officials is in place only in three countries (Italy, Slovenia and Greece).

Adoption of Circular Economy Principles

The table below highlights the adoption of key CE principles (*Eco-design*, *Reuse*, *Recycled Content*) across project countries.

Based on the results we can conclude that:

- Italy demonstrates strong adoption of CE principles and Slovenia has principles in place in relation to GPP, as well as Greece.
- In the rest of the partner countries the situation is merely bleak as very few CE principles are part of the public procurement processes and this issues need to be addressed.

Circular Economy principles	Italy	Montenegro	Greece	Slovenia	Serbia	Bosnia and Herzegovina	North Macedonia
	PP1 & PP2	PP3 & PP9	PP4	PP5	PP6	PP7	PP8
Ecodesign	Yes	No	No	No	Yes	Yes	No
Reuse	Yes	No	Yes	Yes	No	No	No
Recycled content	Yes	No	No	Yes	No	No	No
Recyclability of products	Yes	No	Yes	Yes	No	No	No
Repaired products	Yes	No	No	Yes	No	No	No
Repairability of products	Yes	No	No	No	No	No	No
Refurbished or remanufactured products	Yes	No	No	Yes	No	No	No
Product as service	Yes	No	No	No	No	No	No
Carbon footprint	Yes	No	Yes	No	No	No	No
Life Cycle Impact	Yes	No	Yes	Yes	Yes	Yes	Yes
Environmental impact	Yes	No	Yes	No	Yes	Yes	Yes

Criteria for Products and Services

The table below maps GPP product/service categories adopted across project countries. Based on the results we can conclude that:

- Italy and Slovenia have quite a range of product/service categories that CE are included in GPP.
- Bosnia & Herzegovina and Serbia laga bit behind in comparison with Italy and Slovenia but still have progress in implementing product-specific GPP criteria
- North Macedonia and Montenegro, unfortunately, don't have any CE principles as part of their public procurement processes.

Product/Services	Italy	Montenegro	Greece	Slovenia	Serbia	Bosnia and Herzegovina	North Macedonia
	PP1 & PP2	PP3 & PP9	PP4	PP5	PP6	PP7	PP8
Computers, monitors, tablets and smartphones	No	No	Yes	Yes (Electronic office equipment, monitors)	Yes (Computers, monitors, tablets)	Yes (Computers, monitors)	No
Data centres, server rooms and cloud services	No	No	No	No	No	Yes (Data centers, server rooms)	No
Electricity	Yes	No	No	Yes	No	Yes (appliances)	No
Food catering services and vending machines	Yes	No	No	Yes	No	Yes (Food services)	No
Furniture	Yes	No	No	Yes	No	Yes (furniture)	No
Imaging equipment, consumables and print services	Yes	No	Yes	Yes (office paper)	Yes (printers, scanners, multifunctional devices, office paper)	Yes (print services)	No
Indoor cleaning services	Yes	No	No	Yes (Cleaners, cleaning services and laundry services	Yes (hard surface cleaning products, textile cleaning products)	Yes (cleaning materials)	No
Office building design, construction and management	Yes	No	No	No	Yes (standard air conditioners, inverter air conditioners for heating and cooling)	Yes (energy efficiency)	No
Paints, varnishes and road markings	Yes	No	No	No	No	YES (paints)	No
Public space management	Yes	No	No	No	No	YES (road design, construction)	No
Road design, construction and maintenance	Yess	No	No	Yes (Design or execution of road construction)	No	No	No
Road lighting and traffic signals	Yes	No	Yes	Yes	No	No	No
Road transport	Yes	No	Yes	Yes (Vehicles for road transport and transport services, Anti-noise road fences)	No	Yes (fuel)	No
Textile products and services	Yes	No	No	Yes	No	Yes (textile products)	No
Other	Yes - PP criteria in Italy are called CAM = Criteri Ambientali Minimi (which means Minimum Environmental Criteria) and exists for 18 products and services	No	Copying and writing paper; Interior lighting - LED lamps; Air conditioners; Lubricants (regenerated and biodegradable)	Gardening services, agricultural and other products and equipment and machinery for gardening, tyres, sanitary fittings etc	No	No	No

Barriers to Implementing Circular Economy Principles in GPP Criteria

The analysis of the barriers encountered in implementing Green Public Procurement (GPP) across partner countries revealed several key insights:

- In **Italy** is identified the lack of expertise among stakeholders in applying GPP criteria as a significant issue. Other challenges included difficulties in meeting the demand for green products due to high costs, technological gaps, fragmented governance, and inconsistent enforcement of GPP requirements.
- In **Slovenia** the barriers that are present are limited awareness of GPP benefits and requirements, insufficient training resources for procurement officers, ambiguities in national legislation, economic obstacles (e.g., higher costs), and weak enforcement mechanisms.

- In **Greece** in was highlighted that there is lack of knowledge about GPP, public officials prefer the traditional procurement processes. Other challenges are that SMEs are not prepared to participate in GPP procurement due to lack of capacity and that there is lack of training programs for GPP for local public procurement personnel.
- In **Serbia** it was reported low ecological awareness among managers and decision-makers as the primary concern.
- In **Bosnia and Herzegovina** it was highlighted the lack of guidelines on GPP policies, insufficient legislation, and the limited application of existing GPP criteria by contracting authorities as significant barriers.
- In **Montenegro** it was identified the absence of clear policies and guidelines for incorporating GPP, limited supplier readiness to meet green criteria, and low awareness and training among public officials and suppliers.
- In **North Macedonia was** emphasized the lack of political will to implement green procurement, an absence of legal regulations or a national GPP plan, and insufficient knowledge and expertise among procurement officers.

A recurring issue across all partner countries was the lack of an adequate regulatory framework to promote and support GPP while incorporating circular economy (CE) principles.

Based on the questionnaire results, several key clusters of barriers were identified:

1. **Lack of clear policies or regulatory frameworks**
   Many countries, including Bosnia & Herzegovina, Montenegro, North Macedonia, and Serbia, reported an absence of comprehensive legal frameworks to regulate GPP and integrate CE principles effectively.
2. **Limited training and knowledge for procurement officers**
   The lack of expertise and training among civil servants involved in public procurement was highlighted in Italy, Montenegro, North Macedonia, and Slovenia, as well as Greece.
3. **Low awareness of GPP benefits**
   Insufficient investment in green technologies has limited suppliers' capacity to meet green criteria. This challenge was particularly evident in Slovenia, Montenegro, Serbia, and North Macedonia, and Greece.

6.3 Key findings

The analysis of GPP implementation in the project countries reveals significant discrepancies in both the application and understanding of GPP, which directly affect the integration of Circular Economy (CE) principles into procurement criteria. Italy and Slovenia stand out as leaders, with advanced GPP frameworks and mandatory enforcement mechanisms. In contrast, Greece, Serbia and Bosnia & Herzegovina demonstrate only partial adoption, hindered by operational and institutional challenges, while Montenegro and North Macedonia lag significantly due to limited policies and low market readiness. A number of barriers to the full implementation of GPP are already evident, including regulatory gaps, inconsistent policies, insufficient technical capacity, inadequate training for procurement officers, and a lack of market development for circular products. The integration of CE principles into GPP criteria is particularly challenging in contexts where there is limited awareness and understanding of GPP itself,

exacerbated by weak regulatory frameworks, and where knowledge of CE concepts and their practical application is insufficient. This latter issue represents the most critical barrier. While Italy and Slovenia possess sufficiently structured frameworks to integrate CE principles effectively—albeit with some difficulties—other countries face substantial challenges, such as regulatory inconsistencies and limited market readiness for circular products. These factors contribute to the uneven adoption of CE principles within GPP frameworks across the region.
Despite these challenges, GPP remains a crucial tool for advancing CE principles in public procurement. Addressing these barriers through clearer regulatory frameworks, improved training programs, and enhanced market development is essential. Strengthened collaboration and knowledge-sharing among project partners will be key to overcoming these obstacles and achieving a more harmonized and effective approach to GPP implementation across all countries involved.

7. Conclusion

Green Public Procurement (GPP) plays a crucial role in supporting the transition towards a circular economy by integrating environmental considerations into the purchasing processes of public authorities. Specifically, GPP not only helps to minimize the immediate environmental impacts of products and services but also serves as a strategic tool for promoting circular economy principles. Through this approach, public authorities can push the market towards more sustainable and circular business models. The relationship between GPP and the circular economy is synergistic, with GPP acting as a driver of circularity by influencing supply chains, fostering innovation, and encouraging the development of greener products and services.

However, the analysis highlights that the full potential of GPP in fostering circularity has not yet been realized. Discrepancies in the adoption and implementation of GPP are evident across project countries, with Italy and Slovenia leading due to their advanced GPP frameworks and mandatory enforcement mechanisms. Meanwhile, countries like Greece, Bosnia & Herzegovina and Serbia demonstrate partial adoption but face operational and institutional challenges, and Montenegro and North Macedonia lag significantly, characterized by limited policies and low market readiness. These differences underline the need for a more harmonized approach to GPP implementation, particularly in aligning procurement criteria with circular economy principles.
Barriers to the effective integration of CE principles into GPP include regulatory gaps and inconsistent policies, insufficient technical capacity, inadequate training for procurement officers, and underdeveloped markets for circular products. A significant issue lies in the lack of awareness among stakeholders—both public and private—about the benefits of GPP and CE principles, compounded by a shortage of expertise in applying these concepts effectively. Challenges such as high costs, technological gaps, and fragmented governance further complicate the widespread adoption of GPP. These obstacles emphasize the critical importance of performing need assessments and evaluating solutions that minimize environmental impacts from a life cycle perspective while enhancing circularity.
Despite these challenges, GPP remains a cornerstone of sustainability efforts. Strengthening knowledge and competencies on GPP and CE principles among

stakeholders is essential, as is fostering collaboration with all relevant parties, including policymakers, suppliers, and procurement officers. Italy and Slovenia's structured frameworks demonstrate the potential for success, but even in these countries, difficulties persist in fully integrating CE principles into GPP. For other countries, addressing regulatory gaps, improving training programs, and developing markets for circular products are key priorities.

In conclusion, while GPP is already making strides in advancing circular economy objectives, its future success depends on continued efforts to address existing barriers and refine procurement criteria to align with circularity principles and market needs. Strengthened collaboration, knowledge-sharing, and awareness-raising initiatives will be pivotal in achieving a harmonized and effective GPP approach across the region. By fully leveraging the opportunities provided by GPP, public procurement can significantly contribute to a more sustainable, resilient, and resource-efficient future, solidifying its role as a powerful agent of change in the transition to a circular economy.

8. References

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9. ANNEX

ANNEX 1 - survey results (PP countries)

Bosnia & Herzegovina
https://docs.google.com/document/d/1aILTGi5HltXKhlWKy_p7ky-xSFkjbOs6/edit?usp=drive_link&ouid=111801109434645230186&rtpof=true&sd=true

Italy
https://docs.google.com/document/d/1KkKwPmnt5bwTPumFuWGOZZ4yL1b0J68w/edit?usp=drive_link&ouid=111801109434645230186&rtpof=true&sd=true

Montenegro
https://docs.google.com/document/d/1bPhPpCTp3cXT0OpBoF68-H7hO0JfCfpW/edit?usp=drive_link&ouid=111801109434645230186&rtpof=true&sd=true

North Macedonia
https://docs.google.com/document/d/1HOYi8ORHeqFmbHpGpl2B9_6oT3gmojmz/edit?usp=drive_link&ouid=111801109434645230186&rtpof=true&sd=true

Serbia
https://docs.google.com/document/d/16xMxPTWvT-Oica8R0mklPCwaD0GBfVlj/edit?usp=drive_link&ouid=111801109434645230186&rtpof=true&sd=true

Slovenia
https://docs.google.com/document/d/1fP7YbD-vV40bLfgcX0FzIrU1TYJoPkbIXIB-rG1Nl4o/edit?usp=drive_link

ANNEX 2 - References to national documents of each PP country

Bosnia & Herzegovina

- Http://Www.Sluzbenilist.Ba/Page/Akt/W2q5nrwbmka=
- Https://Www.Javnenabavke.Gov.Ba/Bs-Latn-Ba/News/386/Vijece-Ministara-Bosne-I-Hercegovine-Usvojilo-Strategiju-Javnih-Nabavki-Za-Period-2024-2028
- Law On Public Procurement („Official Gazette Of Bih“ No. 39/14, 59/22, 50/24)
- Public Procurement Strategy In Bosnia And Herzegovina 2024 – 2028 („Official Gazette Of Bih“ No.29/24)
- Law On Environmental Protection In Federation Bih (“Official Gazette Of Fbih” No. 15/21)
- Law On Environmental Protection In Republika Srpska (“Official Gazette Of Rs” No. 71/12, 79/15, 70/20)
- Law On Energy And Regulation Of Energy Activities In The Fbih (“Official Gazette Of Fbih” No. 60/23)
- Law On Energy Efficiency In Federation Bih (“Official Gazette Of Fbih” No. 22/17)
- Law On Energy Efficiency In Republika Srpska (”Official Gazette Of Rs” No. 59/13)

- Law On Waste Management ("Official Gazette Of Rs" No.111/13, 106/15, 2/18, 16/18, 70/20, 63/21, 65/21)
- Law On Waste Management ("Official Gazette Of Fbih" No.33/03)
- Law On Standardization Of Bosnia And Herzegovina ("Official Gazette Of Bih" No. 19/01)

Italy

- Pan (2023): Https://Gpp.Mase.Gov.It/Sites/Default/Files/2023-08/Pan_Gpp.Pdf
- Ministry Of Environment (On Gpp): Https://Gpp.Mase.Gov.It/Home/Pianoazionenazionalegpp
- Several Local Authorities' Websites Have A Section Dedicated To Gpp For Example Regione Veneto: Protocollo Regione Del Veneto - Regione Del Veneto
- Tutorial On Cam: Https://Gpp.Mase.Gov.It/Cam

Montenegro

- Https://Ujn.Gov.Me/Wp-Content/Uploads/2023/02/Zakon-O-Javnim-Nabavkama-2023-Final.Pdf
- Https://Ujn.Gov.Me/Wp-Content/Uploads/2021/11/Strategija-Jn-I-Jpp-2021-2025_.Pdf
- Https://Www.Gov.Me/Clanak/Izvjestaji

North Macedonia

- Strategy For Improving The Public Procurement System (Available Only In Macedonian Language): Https://Www.Bjn.Gov.Mk/Uncategorized/Strategi-A-Za-Unapreduva-E-Na-Sistemot-Na-Avnite-Nabavki-Za-Periodot-2022-2026-Godina/
- Law On Public Procurement (Available Only In Macedonian Language): Https://Www.Crm.Com.Mk/Crmpublicportalapi/Api/Files/Adc5d8e0-Fe49-41bc-A3e0-A244a752b290?Ln=1
- Guidelines For Green Public Procurement In Accordance With The National Legislation Of The Republic Of Macedonia And Examples Of Good Practice At The European Union Level - (Available Only In Macedonian Language): Https://Www.Bjn.Gov.Mk/Prirachnici-Za-Avni-Nabavki/Upatstvo-Za-Zeleni-Avni-Nabavki/

Serbia

- Https://Www.Ujn.Gov.Rs/Wp-Content/Uploads/2024/08/2.-Uzjn-Program-Razvoja-2024-2028-Konacno.Pdf
- Https://Www.Ujn.Gov.Rs/?Page_Id=1195
- Law On Public Procurement (Ppl) ("Official Gazette Of The Republic Of Serba", Nos. 91/19, 92/23): Https://Www.Ujn.Gov.Rs/Wp-Content/Uploads/2024/06/Eng-Public-Procurement-Law-Og-91_2019-Ppo.Pdf
- Rulebook Outlining The Types Of Goods For Which Contracting Authorities Are Obliged To Apply Environmental Aspects In Public Procurement Procedures, "Official Gazette Of Rs," No. 115/23: Rulebook On The Types Of Goods For Which The Contracting Authorities Are Obliged To Apply Environmental Aspects In Public Procurement Procedures ("Official Gazette Of Rs", No. 115/23)

- Rulebook On Requirements Regarding Energy Efficiency In Public Procurement Procedures “Official Gazette Of The Rs” Number 10/22, (28 January 2022): Https://Www.Ujn.Gov.Rs/?Page_Id=3649&Lang=En

Slovenia

- Https://Pisrs.Si/Pis.Web/Pregledpredpisa?Id=Zako7086
- Https://Pisrs.Si/Pregledpredpisa?Id=Ured7202