

CONSUMER AWARENESS AND BEHAVIOURAL DYNAMICS IN THE CIRCULAR ECONOMY: GREEN PUBLIC PROCUREMENTS IN MUNICIPALITIES

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Abstract

Sustainable consumption is the use of products and services to reduce environmental impact. It is the cornerstone of well-being and a key driver of the circular economy. Sustainable consumption can be implemented in a way that meets the needs of both people today and future generations. Education plays a crucial and invaluable role in fostering a sustainable society by raising awareness of circular practices across the many types of consumers.

In 2024, the first scientifically based survey of Latvian municipalities was conducted to assess the level of circular economy, or readiness for the transition from a linear to a circular economy. In conducting a self-assessment, all 43 municipalities in Latvia provided their views on the main aspects of the new economic paradigm. This research examines the relationship between perceived and actual circular behaviour at the municipal level, focusing specifically on Green Public Procurement (GPP) practices as a measurable indicator for sustainable action.

By comparing self-assessed GPP usage with objective procurement data from the Procurement Monitoring Bureau, the research reveals a weak but positive correlation, suggesting that awareness does not consistently translate into behaviour. Despite this, municipalities demonstrated a higher GPP share than national institutions, suggesting that local governance may play a crucial role in accelerating circular economy transitions.

Keywords: *circular economy, municipalities, green public procurement, Latvia*

JEL Classification: I38, R11, A23

1. INTRODUCTION

The circular economy (CE) represents a systemic shift from the traditional linear “take-make-dispose” model to one that aims to maintain the value of products, materials, and resources for as long as possible (Geissdoerfer *et al.*, 2017; Alhola *et al.*, 2019). Consumer awareness and behaviour play a crucial role in the success of this transition (Toth-Peter *et al.*, 2025), particularly in the context of green public procurement (GPP) at the municipal level. GPP is increasingly recognized as a strategic approach for state and municipal governments to achieve environmental sustainability goals (Liu *et al.*, 2019; Ortega Carrasco *et al.*, 2025). This process involves public authorities seeking goods, services, and works that minimize environmental impact, thereby playing a vital role in fulfilling broader sustainable development objectives (Karnavos *et al.*, 2022; EPA, no date). With public procurement constituting about 15–20 % of the global GDP and local governments handling nearly 50% of these decisions, there is a significant opportunity to leverage purchasing power for environmental benefit (Ellen MacArthur Foundation, 2023).

Consumer awareness and behaviour are fundamental to fostering a culture of sustainable consumption and the successful implementation of the CE (Sustainability Directory, 2025). Informed individuals are more likely to consider the environmental, social, and ethical implications of their purchasing decisions (Osburg *et al.*, 2019; Nie *et al.*, 2021). This awareness not only empowers consumers to support businesses that prioritize sustainability but also encourages the adoption of responsible consumption practices (Camacho-Otero, Boks & Pettersen, 2018). As a result, understanding and addressing these behavioral dynamics is essential for overcoming challenges to implementing effective GPP strategies. The notable significance of GPP lies in its potential to align public procurement practices with broader environmental policy objectives, thereby promoting sustainable development goals (Ortega Carrasco *et al.*, 2025).

This research explores the link between awareness and action in the context of the circular economy, focusing on how public sector entities, particularly municipalities, understand and implement sustainable procurement practices. By comparing self-assessed use of GPP with actual procurement data across Latvian municipalities and state institutions, the study reveals both strengths and gaps in environmental awareness and behavioural alignment.

The central research question is: To what extent does institutional awareness reflect actual environmentally responsible behaviour in public procurement within the framework of the circular economy?

2. LITERATURE REVIEW

The transition to CE is a strategic imperative for achieving environmental sustainability, long-term economic stability, and social equity (Vlialko, 2024).

Defined as an economic system that replaces the "end-of-life" concept by reducing, reusing, recycling, and recovering materials throughout production, distribution, and consumption processes, CE fundamentally rethinks current production and consumption practices (Geissdoerfer *et al.*, 2017; Kristensen, Mosgaard & Remmen, 2021; Avrami *et al.*, 2024; Toth-Peter *et al.*, 2025). This shift is crucial for sustainable development, as it aims to decouple value creation from waste generation and resource use through radical transformations in existing systems (Camacho-Otero, Boks and Pettersen, 2018). Achieving circularity requires systemic changes across product systems, as purchasing and utilization patterns fundamentally determine material demand (Avrami *et al.*, 2024).

GPP is a critical policy instrument for implementing the CE as it is closely intertwined with the CE concept. GPP is formally defined as "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" (European Commission, no date). Over time, GPP has evolved to include social and economic considerations, broadening its scope to what is known as Sustainable Public Procurement (SPP), which aims to achieve sustainable development objectives through purchasing and supply processes (Uttam and Le Lann Roos, 2015; Cheng *et al.*, 2018).

Governments, as major consumers, wield significant purchasing power, spending approximately 12.5 % of the European Union's GDP annually on goods and services (European Commission, 2021). This purchasing power acts as a powerful market trigger, incentivizing companies to develop and provide greener products and services, thereby driving demand for sustainable solutions and fostering innovation across supply chains (Wang *et al.*, 2021; Behravesh, Darnall & Bretschneider, 2022). By establishing high environmental performance standards, GPP aims to reduce waste, enhance resource efficiency, and promote the reuse and recycling of materials (Vlialko, 2024). Many governmental and local initiatives that promote GPP are, in effect, also promoting Circular Public Procurement (CPP), which is explicitly defined as public procurement conducted in line with CE principles, aiming to contribute to closed energy and material loops across the entire lifecycle (Kristensen, Mosgaard and Remmen, 2021; Ntsondé & Aggeri, 2021). This approach necessitates new ways of thinking about needs, processes, and organizational structures, moving beyond mere environmental criteria integration (Sönnichsen and Clement, 2020).

A crucial aspect of promoting CE and GPP/SPP is understanding consumer and institutional awareness and how it translates into action (Nie *et al.*, 2021). Research indicates a significant positive correlation between environmental concern and purchasing behavior. However, this positive correlation often shows a weaker impact on actual purchase behavior compared to purchase intention,

illustrating a persistent “attitude-behavior gap” or “words-deeds gap” (Borges-Tiago *et al.*, 2024; Kossmann and Gomez-Suarez, no date). This gap is a significant impediment to the wider adoption of CE, with a lack of consumer interest and awareness identified as a main barrier in the European Union (Camacho-Otero, Boks & Pettersen, 2018; D’Amato, 2021). Consumer behavior in a circular economy is influenced by perceived costs and benefits (both environmental and economic), trust in product quality, and cultural perceptions (Henriques, Figueiredo & Nunes, 2023; Vidal-Ayuso, Akhmedova & Jaca, 2023; Lopez & Legardeur, 2024). Studies suggest that proactive efforts, such as strategic messaging emphasizing collective impact, can significantly increase perceived eco-alignment and willingness-to-pay for circular offerings (Avrami *et al.*, 2024). However, consumers often prioritize personal financial benefits over purely ecological reasons and are generally unwilling to pay a premium for circular economy products (Toth-Peter *et al.*, 2025).

For public sector entities, particularly municipalities, their role as effective information communicators can be pivotal in disseminating green consumption knowledge (Wang *et al.*, 2021). Awareness and knowledge among procurers are identified as key drivers for developing effective CPP procedures, often being considered even more important than financial resources (Sönnichsen and Clement, 2020). Individual procurers' beliefs, along with adequate training and guidance, are essential for effective CPP implementation (Grimbert and Zabala-Iturriagoitia, 2024). Therefore, organizational structures must actively support knowledge dissemination and provide continuous training for staff involved in CPP-related tasks (D’Amato, 2021).

3. RESEARCH METHODOLOGY AND RESULTS

In the research, a two-tier data set was used to analyse the GPP practices in Latvian municipalities:

- 1) Primary data from the survey, conducted across all 43 municipalities, covered several aspects of the CE, including a question on how frequently the GPP is used;
- 2) Secondary data from the national Procurement Monitoring Bureau (PMB) on the public procurement procedures announced in 2023.

Using the advanced search on the PMB website, all published notices for tenders from January 1, 2023, to December 31, 2023, were exported. After exporting, manual data processing was performed to exclude irrelevant entries and retain only those published by state and municipal institutions and enterprises. Based on the name of the contracting authority, the records were classified into four categories:

1. Central government institutions, agencies, services, etc.;
2. State-owned enterprises;
3. Municipality or city council (central administration);

4. Municipal enterprises and institutions.

Categories (1) and (2) were analysed as state administration, while categories (3) and (4) were analysed as municipalities. For categories (3) and (4), the distinction between city and rural municipality was also indicated. This data analysis aimed to determine the share of GPP in the total number of announced procurement procedures and conduct a detailed breakdown by contracting authority categories.

In total, 12,336 procurement procedures were announced in 2023. Of these, 11,131 did not include environmental protection requirements, while 1,205 tenders did, i.e., were classified as GPP. Analysing the data at state and municipal levels, it was concluded that municipalities (central administration and enterprises) were more active procurers (7,098 procedures) than the state administration (5,238 procedures) (see Figure 1).

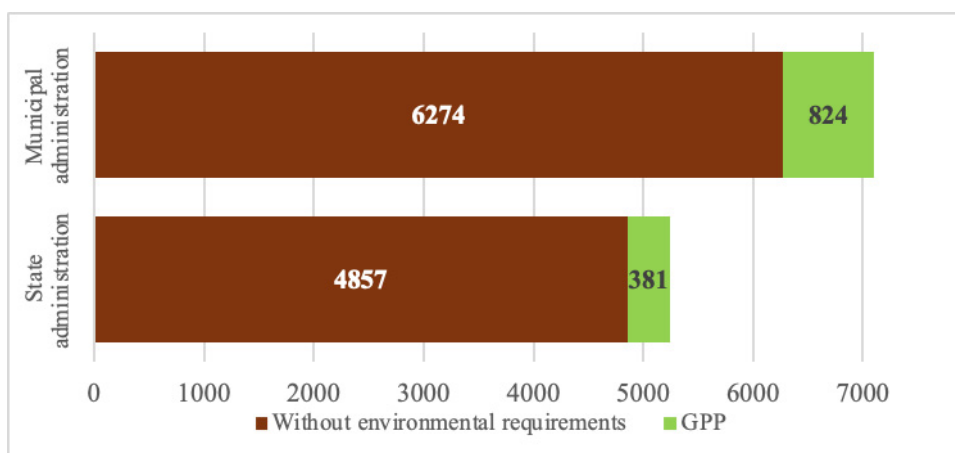


Figure 1. Announced Procurement Procedures:
State and Municipal Administrations, 2023

Source: created by the authors, based on the PMB data

In 2023, municipalities (11.61 %) were generally more active in implementing GPP than the state sector (7.27 %), resulting in the overall GPP share of 9.77 %. Among the subcategories (see Figure 2), municipal or city councils (central administration) had the highest share (13.77 %), which is a positive result from an environmental and circularity standpoint, suggesting a relatively high level of awareness and responsibility at this level of governance.

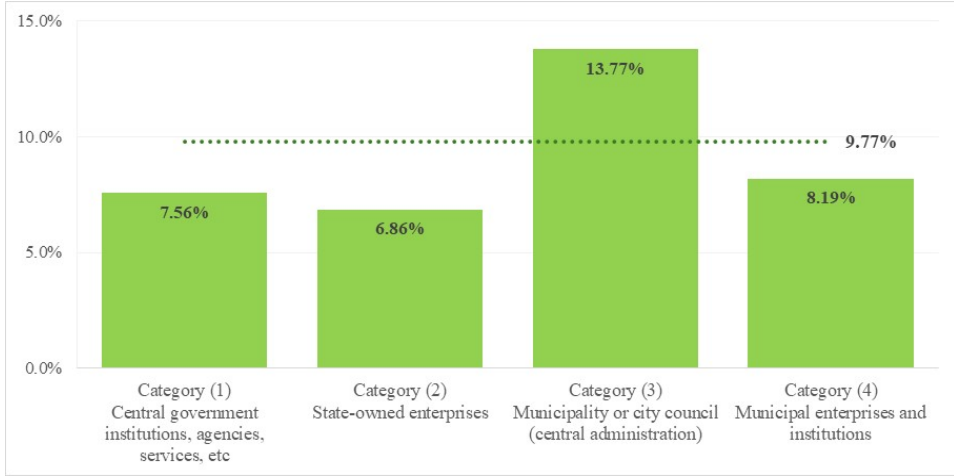


Figure 2. GPP Share, %: State and Municipal Administrations, 2023, 2023

Source: created by the authors, based on the PMB data

Six municipalities even scored above 20 %, while eleven municipalities, including the capital city, were below the national average of 9.77 %.

To compare the result of publicly available data analysis with the municipality survey results, a correlation analysis using Spearman's rank correlation coefficient was conducted.

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2 - 1)}$$

Where:

$\sum d_i^2$ – sum of squared rank differences, and

n – number of municipalities included in the dataset (43).

The question “To what extent has your municipality used Green Public Procurement during the past six months?” was answered using the Likert scale (from “Never” to “Very often”). Each answer was assigned a numerical score from 1 to 5, and the survey results were compared with the GPP share based on PMB data.

The calculated correlation coefficient was $\rho = 0.165849$. Although a weak positive trend exists, the correlation is not strong enough to indicate a statistically significant monotonic relationship between the GPP share and self-assessment results. It may be coincidental. Higher GPP shares might correlate with higher self-assessment scores, but the evidence is insufficient to confirm this confidently. Additionally, the evaluation periods differed: while public data was for a full year, survey responses referred to perceived GPP usage frequency in the last six months.

4. CONCLUSIONS

Data quality and availability are crucial for evidence-based measurements. Significant manual work was needed to process the initial data export and add the necessary analysis attributes. Due to the lack of data on the final contract value, it was not possible to analyse GPP in monetary terms, which may be more informative than the procedure counts. Since no centralized institution in Latvia compiles information on actual money spent on GPP compared to other procurements, the actual GPP share in the public expenditure can only be estimated, not calculated precisely.

Correlation analysis between the actual GPP share and the self-assessed GPP usage suggests that there is some alignment between how municipalities perceive their use of Green Public Procurement and their actual performance, but the relationship is very weak and not statistically significant. The low correlation implies that municipalities' awareness or understanding of their own GPP practices may be incomplete or inaccurate, as they overestimate or underestimate how much they are actually using GPP. The discrepancy between perceived and actual GPP use may indicate that survey respondents lack detailed knowledge of procurement practices. This might be the key area for local policymakers to be aware of and improve to facilitate the transition to the CE.

The fact that municipalities demonstrate a higher GPP share than state institutions suggests a stronger engagement at the local level in adopting sustainable procurement practices. This indicates that municipalities may be more responsive to environmental priorities and closer to community-level behavioural shifts, playing a pivotal role in driving the transition towards the CE. Their proactive stance reflects growing institutional awareness and accountability in implementing green initiatives.

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