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## CIRCULAR PUBLIC PROCUREMENTS: MYTH OR REALITY? TOWARDS TRANSFORMATION TO CIRCULAR ECONOMY

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**ABSTRACT:** This article addresses the issue of circular public procurement within the circular economy. The aim of the article is to investigate the relationship between awarding circular public procurements (CPPs) by local government units (LGUs) and the local context indicators, such as legally protected areas, level of income, expenditure or deficit per inhabitant, type of LGUs or model of LGUs management. The theoretical part approaches issues such as LGUs' practice of awarding CPPs, and the problems associated with circular tenders' criteria. The conducted empirical study revealed the potential of Polish LGUs for the circular economy, in the field of CPP. However, the results of the survey demonstrated that CPPs based on environmental, social, and economic award criteria, are a myth, not reality. LGUs have very strong purchasing power which may be used to support transformation toward a circular economy. The concluding part highlighted the need for minimum mandatory CPP awarding criteria.

**KEYWORDS:** circular economy, circular public procurements, sustainable development, local government units, green public procurements

## Introduction

One of the biggest contemporary challenges for the EU member states is both reducing the volume of extracted resources and wastes, aiming at the reduction of environmental impacts (Lorek & Lorek, 2023). This is particularly obvious for Poland where, in 2023, many new illegal hazardous waste landfills were discovered after one of them burned down. The linear model of production and consumption based on raw materials, which generates a variety of negative environmental, economic, or social effects, should be replaced by a circular economy based on resource savings. Local government units may play a significant role in fostering transformation of local economies toward circular ones through policies or actions like awarding circular public procurements. Moreover, the mandatory circular public procurements may foster transformation toward a circular economy due to the €2 trillion spent annually on public procurements in the EU member states alone (Klein et al., 2020).

Public procurements are the acquisition of works, goods or services needed for public authorities, like local government units, to fulfill their functional objectives. Local government units are the biggest group of public authorities, obligated to purchase goods, services or works through the awarding procedures of the EU and national public procurement law. For example, in Poland, national public procurement law for goods, services or works, has a threshold of PLN 130 000 for all Polish public authorities. This means that local government units may purchase goods, services or works with a value of less than PLN 130 000 based on internal procedures and award criteria. The threshold for the EU public procurements for goods or services for local government units is EUR 221 000. This means that local government units may purchase goods or services with a value of less than EUR 221 000 based on national procedures and award criteria, which must comply with classical (Directive, 2014a) or sector (Directive, 2014b) EU public procurement directives.

A circular economy is an approach which involves slowing, closing, and narrowing the loop of the flow of goods (Nikolaou et al., 2021). However, there are many different definitions of a circular economy and, in some of them, not only goods, but also services are emphasized. Services like indoor cleaning, printing, or food catering may also be circular and green<sup>1</sup>. In circular public procurement, public authorities should place emphasis on all environmental, social, and economic awarding criteria of public procurement, which allow for the promotion of economic operators (entrepreneurs who apply for public procurements), who will be able to deliver recycled, repaired, or reused goods produced from recycled, repaired, or reused components or materials, instead of goods made solely from raw materials. However, this requires a circular purchasing attitude from local government units (later LGUs), as well as their heads of public procurement departments. Hitherto, the circular public procurements in the EU are not mandatory for public authorities. That is why, the policies for the promotion of the principles of circular economy are equally important (Geng et al., 2012), as well as the promotion of the principles and award criteria of circular public procurements.

This study responds to calls (Cheng et al., 2018) to investigate the context of awarding circular public procurements, which later may start the process of transformation of local economies toward circular ones. Therefore, the aim of this research was to ascertain whether indicators of local context influenced the number of awarded circular public procurements. The empirical analysis is based on data collected through an electronic survey sent in June 2021 to all the Polish LGUs (all the municipalities and cities on district rights, all districts, and all provinces). A logistic regression analysis was performed to predict a binary outcome, such as awarding by LGUs of circular public procurements (dependent variable) by analyzing the relationship with the LGUs local context indicators.

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<sup>1</sup> The EU has developed in the years 2017-2020 voluntary green public procurement criteria for food catering services, indoor cleaning services, print services or textile services. See at [https://green-business.ec.europa.eu/green-public-procurement/gpp-criteria-and-requirements\\_en](https://green-business.ec.europa.eu/green-public-procurement/gpp-criteria-and-requirements_en).

## An overview of the literature

The EU public procurement directives do not introduce mandatory circular public procurements award criteria. Those include lifecycle costs of goods or works which could focus on the regeneration of capability of used resources and utilization of waste materials or minimization of resource consumption by public authorities. Those measures are typically taken in order to achieve the basic goals of a circular economy, such as slowing, closing, and narrowing material and energy loops' (Geissdoerfer et al., 2017). Moreover, in the EU, there are no mandatory circular tender award criteria, except the limitation that the price criterion for public authorities should not exceed 60% (with possible exemptions).

The literature on the subject underlines that circular public procurements may stimulate sustainable eco-innovation and foster the development of greener markets aimed towards circular economy (Ntsondé & Aggeri, 2021). Moreover, the circular economy concept, as well as the procedure for awarding circular public procurements, may be supported by activities like cooperation in collection of waste materials to be recycled between public authorities and economic operators. The aforementioned initiatives encourage the reduction of individual consumption by public authorities and promote sharing economy practices between public authorities and economic operators, such as providing access to goods instead of owning them outright (Alvarado et al., 2021). In addition, the promotion of circular economy requires specific local policies to strengthen the awareness of LGUs for circular public procurements like the European Union's Circular Economy Action Plan introduced at a national level.

The circular economy concept has evolved since the 1960s and recently, similarly to circular public procurement, is the subject of interest of many stakeholders. There are various articles that focus on specific applications of the circular economy e.g.: i) electronic waste (Lorek & Lorek, 2023); ii) cultural tourism (Rudan et al., 2021); iii) armed forces (Janikowski, 2020); iv) revitalization (Nowakowska & Grodzicka-Kowalczyk, 2019); v) water resources (Lorek & Lorek, 2018); vi) plastics industry (Piontek, 2019); vii) cities (Sobol, 2019); viii) ecosystem services (Wojtach, 2016). Other articles focus on specific approaches to the circular economy like ix) anthropocentric approach (Śleszyński, 2018) or x) production function (Pieńkowski & Kośmiecki, 2016).

For circular public procurements, according to the literature, the following factors are of key importance: i) the organizational aspects of awarding process; ii) individual behavior of public authorities; iii) operational tools like eco-labels, standards, life cycle assessments and life cycle costing (Sönnichsen & Clement, 2020). However, literature does not provide empirical evidence regarding the local context indicators which may explain LGUs actions (or lack thereof) towards awarding the circular public procurements. Such local context indicators like i) type of local government units (TYP); ii) level of income per inhabitant (TIP); iii) level of expenditure per inhabitant (TEP); iv) number of inhabitants (INH); v) legally protected areas in hectares (LPP); vi) level of deficit per inhabitant (IND); vii) engagement of LGUs in supporting local sustainable development process (SUS) or viii) model of LGUs management (MOD) may influence the number of awarded circular public procurements. There is a lot of research into the potential of circular public procurements (Alhola et al., 2019; Sönnichsen & Clement, 2020; Kristensen et al., 2021), which is focused mainly on possible tools like eco-labels, standards, life cycle assessment or life cycle costing, as well as organizational aspects of the public procurement process. However, according to our best knowledge, there is no research on the relationship between the above-mentioned local context indicators and the number of awarded circular public procurements in relation to "general" ones.

The EU circular public procurements regulations should, according to some scholars, allow public authorities to purchase only goods, services or works which reduce the overall footprint of their activities (Junnila et al., 2018; Vita et al., 2019). Circular public procurements are a new field in practice or in academia and public authorities like LGUs should focus on purchasing goods which are recyclable, reusable, repairable, remanufacturable or refurbishable based on environmental, economic and social award criteria. The differences between purchasing, for example, a printer by LGUs in traditional and in circular public procurements lie in the award criteria. In traditional public procurements example award criteria are: 60% price, 20% guarantee period and 20% date of delivery. By comparison, in circular public procurements, example award criteria should include: A+++ class of energy efficiency or a printer manufactured from recyclable components (environmental impact),

a printer with a lifetime repair guarantee (economic impact), a printer manufactured by disabled employees (social impact). Unfortunately, circular public procurement presents a higher level of complexity compared to traditional public procurement which is based on linear transactional value chains, which can discourage many public authorities (Kristensen et al., 2021). Hitherto, circular public procurements are optional in the EU member states, which means that public authorities, like LGUs, have full freedom (under certain conditions) in choosing tender award criteria.

Circular economy focuses on addressing both the environmental and socio-economic issues (Witjes & Lozano, 2016). That is why circular public procurement should be based on all of the following evaluation criteria:

- environmental criteria (like a reduced impact of the purchased goods, services or works on the environment, for example A+++ class of energy efficiency, water savings, low acoustic noise emission class, as well as goods, services or works which are environmentally friendly for animals and plants for example zero emissions buildings or products from reclaimed woods or other materials used earlier with neutral impact on environment),
- social criteria (like equalizing employment opportunities by purchasing goods or works done by people with disabilities, individuals at risk of social exclusion, people under 30 or over 50 years old, people with criminal history etc.),
- economic criteria (like goods or works with eco-innovations, purchased from sustainable entrepreneurs, manufactured from recycled components or with lifetime repair guarantee).

The new (previous version was launched in 2015) Circular Economy Action Plan (CEAP) was adopted by the European Commission (2020) in March 2020 as one of the main blocks of the European Green Deal (European Commission, 2021). Purchasing power of public authorities, like LGUs, represents 14% of EU GDP and may be a powerful driver towards the demand for circular goods, services and works (European Commission, 2020). In CEAP, the European Commission committed to propose, by 2021, the minimum mandatory green public procurement (GPP) criteria and targeted it first in sectoral legislation. However, hitherto we still have only voluntary GPP criteria, which cover only selected groups of goods, services or works, like: i) computers, monitors, tablets and smartphones; ii) data centers, server rooms and cloud services; iii) electricity; iv) food catering services and vending machines; v) furniture; vi) imaging equipment, consumables and print services; vii) indoor cleaning services; viii) building design, construction and management; ix) paints, varnishes and road markings; x) public space maintenance; xi) road design, construction and maintenance; xii) road lighting and traffic signals; xiii) road transport and xiv) textile products and services.

For those reasons, and in response to calls for research (Klein et al., 2020; Milios, 2018) that aims to enhance the concept of circular economy by focusing on context indicators which support procedures for awarding circular public procurements, the authors formulated the following hypothesis: H1: *The following set of local context indicators i) type of LGUs (TYP); ii) level of income per inhabitant (TIP); iii) level of expenditure per inhabitant (TEP); iv) number of inhabitants (INH); v) legally protected areas in hectares (LPA); vi) level of deficit per inhabitant (IND); vii) engagement of LGUs in supporting local sustainable development process (SUS) or viii) model of LGUs management (MOD), influenced the number of circular public procurements awarded by LGUs.*

## Research methods

Empirical research into Polish public authorities, like LGUs, was carried out in June 2021. Data were acquired using an electronic survey in Polish, which was sent to n=2807 LGUs, i.e. all rural, rural-urban, urban municipalities and cities on district rights and all districts and provinces. The response rate from Polish LGUs was n=1041. However, only 847 LGUs i.e. 81% of LGUs who participated in the study awarded at least one public procurement based on the new Act of September 11, 2019 Public Procurement Law which, starting from 1 January 2021 changed public procurement in Poland and introduced voluntary economic, social and environmental effects of awarded public procurements. Unfortunately, due to 269 incomplete records i.e. LGUs who refused to provide the seat of LGU, it was not possible to collect data published by Statistics Poland in the Local Data Bank for the year 2021. That is why, the statistical analysis compares only 581 LGUs records which encompasses 21% of the LGUs population (requiring n=min. 333). The sample had a 5% maximum error (2SE) and

a 95% trust level. The research sample was not fully representative of all LGUs, because rural municipalities (44.4% in sample versus 53.5% in population) were under-represented, in contrast to urban-rural municipalities (25.6% in sample versus 24.2% in population), urban municipalities (12.7% in sample versus 8.5% in population), cities on district rights (5.2% in sample versus 2.4% in population) and provinces (0.9% in sample versus 0.1% in the population), which were over-represented. Only results for districts (11.2% in sample versus 11.3% in population) were fully representative.

Surprisingly, in Poland only 2.06% of LGUs (12 out of 581 LGUs who participated in the study) awarded a circular public procurement (CPP) based on all (environmental, economic, and social) circular award criteria. The variable (CPP) had a value of "0" if LGU did not award circular public procurement based on environmental, social and economic award criteria, and "1" if they did.

The list of independent variables was as follows: i) type of local government units (TYP); ii) level of income per inhabitant (TIP); iii) level of expenditure per inhabitant (TEP); iv) number of inhabitants (INH); v) level of deficit per inhabitant (IND); vi) legally protected areas in hectares (LPA); vii) engagement of LGUs in supporting local sustainable development (SUS) or viii) model of LGUs management (MOD). The level of income per inhabitant; level of deficit per inhabitant; level of expenditure per inhabitant; number of inhabitants, or legally protected areas in hectares, were based on data published by Statistics Poland in the Local Data Bank for the year 2021 and variables like type of LGUs, engagement in supporting local sustainable development or model of LGUs management, were taken from the survey. Statistical analyses were conducted using the IBM SPSS Statistic Program Version 29.

The strengths of this methodology are: i) a cohesive research sample of the largest group of public authorities, as LGUs who awarded at least one circular public procurement based on environmental, social and economic award criteria; ii) an electronic survey with indirect questions, or questions with detailed definitions; iii) the logistic regression model which predicts awarding circular public procurements by LGUs (dependent variable) by analyzing the relationship with the independent variables; iv) a large sample, i.e. 581 LGUs (complete records). This allowed for a detailed examination of reasons why only 12 out of 581 LGUs (2%) awarded a circular public procurement based on environmental, economic, and social award criteria.

## Results of the research

The descriptive statistics (see Table 1) of quantitative variables showed that LGUs (in sample) had, on average, the total income per capita of 5 338 PLN (from 3 880 to 9 798 PLN), compared to the country average of 5 969 PLN; and the total expenditure per capita was 5 351 PLN (from 3 770 to 11 072 PLN), compared to the country average of 6 051 PLN. LGUs in the sample had no indebtedness by average (from -11 086 to 10 990 PLN) compared to the country average of -82 PLN. The number of inhabitants were on average of 58 043 (from 1 476 to 5 423 168) compared to the country average of 13 861. The legally protected areas in hectares were on average of 13 897 hectares (from 0 to 1 057 801) compared to the country average of 3 601 hectares.

The categorical variables like SUS, MOD, CPP, or TGL (see Table 2) showed that 71% of LGUs who participated in the study supported local sustainable development processes by undertaking a variety of sustainable activities. Surprisingly, 46% of LGUs that participated in the study were not able to classify their management model (MOD). 44% of LGUs had a classic model of public administration management and only 4% of LGUs had the New Public Management model. Other models of management were very rare, not exceeding 2% of LGUs (public co-management or relationship management models).

**Table 1.** Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Dev.
TEP	581.0	3770.4	11071.6	5350.9	942.9
TIP	581.0	3880.2	9797.6	5337.5	856.5
LPA	581.0	0.0	1057801.0	13861.0	74518.6
INH	581.0	1476.0	5423168.0	58043.3	310138.5
IND	581.0	-11086.0	10989.9	74.2	1119.8
Valid N (list wise)	581/0				

Source: authors' work based on IBM SPSS Program version 29.

**Table 2.** Frequencies

		SUS	TYP	MOD	CPP
N	Valid	581	581	581	581
	Missing	0	0	0	0
Mean		0.7108	2.1566	0.7917	0.0207
Std. Deviation		0.45376	1.37887	1.08739	0.14235
Minimum		0.00	1.00	0.00	0.00
Maximum		1.00	6.00	6.00	1.00
Percentiles	25	0.0000	1.0000	0.0000	0.0000
	50	1.0000	2.0000	1.0000	0.0000
	75	1.0000	3.0000	1.0000	0.0000

Source: authors' work based on IBM SPSS Program version 29.

Quantitative independent variables, such as LPA and INH, were correlated with a dependent variable, i.e. CPP (see Table 3). These correlations were significant at the 0.01 level (two-tailed). For categorical independent variables, the contingency table was prepared. Unfortunately, only TYP and SUS were related to CPP (see Table 4).

**Table 3.** Pearson Correlation

CPP	TEP	TIP	LPA	INH	IND
Pearson Correlation	0.052	0.076	<b>0.244**</b>	<b>0.170**</b>	0.003
Sig. (2-tailed)	0.214	0.066	0.000	0.000	0.935
N	581	581	581	581	581

\*\* Correlation is significant at the 0.01 level (2-tailed).

Source: authors' work based on IBM SPSS Program version 29.

A logistic regression model predicted awarding circular public procurements by LGUs by analyzing the relationship with defined local context data. Logistic regression also estimated the probability of LGUs' awarding circular public procurements or lack thereof, based on a given local context indicators. Independent variables such as i) LPA; ii) INH; iii) TYP; iv) SUS, were introduced into the model.

**Table 4.** Contingency coefficient

CPP		SUS	TYP	MOD
Nominal by Nominal	Phi	0.093	0.283	0.105
	Approximate Significance	<b>0.026</b>	<b>0.000</b>	0.378
	Cramer's V	0.093	0.283	0.105
	Approximate Significance	<b>0.026</b>	<b>0.000</b>	0.378
N of Valid Cases		581	581	581

Source: authors' work based on IBM SPSS Program version 29.

The research hypothesis has not been confirmed because only legally protected areas in hectares (LPA) influenced the number of awarded circular public procurements by LGUs. The model was based on only four independent variables such as LPP, INH, TYP and SUS; yet despite that, it was able to make a correct prediction in 100% of the cases of LGUs' not awarding circular public procurements, as well as in 8.3% of the cases of awarding circular public procurement by LGUs. The overall percentage of correct prediction was 98.1% (see Table 5). Moreover, the Hosmer and Leme show Test confirmed that the chosen model fitted the data well. Logistic regression analysis was performed based on Godlewska and Mackiewicz (2023).

**Table 5.** Logistic regression analysis

Case Processing Summary			
Unweighted Cases <sup>a</sup>		N	Percent
Selected Cases	Included in Analysis	581	100
	Missing Cases	0	0
	Total	581	100
Unselected Cases		0	0
Total		581	100

<sup>a</sup> If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding	
Original Value	Internal Value
0	0
1	1

BLOCK 0: BEGINNING BLOCK

Classification Table <sup>a,b</sup>					
Observed			Predicted		
			CPP		Percentage Correct
			0.00	1.00	
Step 0	CPP	0.00	569	0	100.0
		1.00	12	0	0.0
	Overall Percentage				

<sup>a</sup> Constant is included in the model  
<sup>b</sup> The cut value is 0.500



Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-3.859	0.292	175.009	1	<0.001	0.021

  

Variables not in the Equation <sup>a</sup>					
			Score	df	Sig.
Step 0	Variables	LPA	34.487	1	0.000
		INH	16.743	1	0.000
		SUS	4.984	1	0.026
		TYP	2.956	1	0.086

<sup>a</sup> Residual Chi-Squares are not computed because of redundancies.

BLOCK 1: METHOD ENTER

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	17.806	4	0.001
	Block	17.806	4	0.001
	Model	17.806	4	0.001

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	99.061 <sup>a</sup>	0.030	0.166

<sup>a</sup> Estimation terminated at iteration number 20 because maximum iterations have been reached. Final solution cannot be found.

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	8.548	8	0.382

Classification Table <sup>a</sup>					
Observed		Predicted			
		CPP		Percentage Correct	
		0.00	1.00		
Step 1	CPP	0.00	569	0	100.0
		1.00	11	1	8.3
	Overall Percentage				

<sup>a</sup> The cut value is 0.500

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	LPA	0.000	0.000	4.471	1	0.034	1.000
	INH	0.000	0.000	1.590	1	0.207	1.000
	SUS	17.515	3099.383	0.000	1	0.995	40439700.607
	TYP	0.011	0.228	0.002	1	0.962	1.011
	Constant	-21.256	3099.383	0.000	1	0.995	0.000

<sup>a</sup> Variable(s) entered on step 1: LPP, INH, SUS, TYP.

Source: authors' work based on IBM SPSS Program version 29.



## Discussion

LGUs play a key role in the sustainable development process (Brugmann, 1996) and in supporting local transformation towards local circular economy. Surprisingly, according to the results of the current study, only 12 out of 581 (2.06%) Polish LGUs awarded circular public procurement based on environmental, economic, and social award criteria. Polish LGUs, similarly to LGUs in New Zealand, seem to not be motivated to ensure a sustainable world (Bellringer et al., 2011) or circular economy. However, Polish cities, like Krakow, Gdansk or Lublin in 2019 as part of their strategies implemented an action called “Active municipality” that encourages local government leaders to take an active stance by awarding green public procurements that promote new construction technologies or subsidize green roofs (INNWO, 2021). Unfortunately, those strategies for local circular economy are hitherto in the initial stages of implementation. This may explain the aforementioned low level of circular public procurements based on environmental, economic and social circular award criteria. Polish LGUs should follow the example of LGUs from Oslo (Norway), Vantaa (Finland), Rotterdam (Netherlands), Paris (France), Brussels (Belgium) or Galicia and Navarra regions of Spain who treat circular public procurements as one of their most powerful tools in the implementation of circular economy at local or regional stage (OECD, 2020). It is important to highlight that LGUs may also promote circular services through circular public procurements, as is the case in Rotterdam, or responsible consumption through circular public procurement as in Paris (OECD, 2020).

The Japanese LGUs example underlines the importance of cooperation between public and private partners (like with economic operators) for achieving sustainable development or circular economy at a local level (Masuda et al., 2022). This is in contrast with the results of our study which proved a lack of engagement of LGUs in awarding circular public procurements or public private partnership projects using circular public procurement procedure and award criteria. In addition, without proper circular public procurements criteria that focus strictly on the extension of product life span or efficiency (Alhola et al., 2019), there will be no circular public procurements. Unfortunately, circular public procurement based on i) environmental award criteria, such as low carbon footprint, energy efficiency, lack of pollution or usage of recycled materials; ii) economic evaluation criteria, such as low life cycle cost or innovative solutions and iii) social evaluation criteria, such as social standards in trade; engaging unemployed people under 30 or above 50 years old, or employing people with disabilities, are a myth, not a reality in Poland. Similarly, circular public procurements are also very rare among the Danish local governments (Kristensen et al., 2021).

Surprisingly, the type of LGUs, level of income per inhabitant, level of expenditure per inhabitant, number of inhabitants, level of deficit per inhabitant, or model of LGUs management, did not matter towards awarding circular public procurements based on environmental, social and economic award criteria. What mattered for awarding circular public procurements by LGUs were legally protected areas in hectares. LGUs with large legally protected areas, such as national parks, nature reserves, landscape parks, protected landscape areas, Natura 2000 areas, ecological areas, natural monuments, documentation sites and natural and landscape complexes, as well as ones containing plant and animal species under protection, were much more eager to award circular public procurements. In Poland, the Act of April 16, 2004 on nature protection, regulated the legally protected areas which, at the end of 2017, amounted to over 10.2 million hectares and constituted 32.5% of the country’s area. Poland is one of the leading EU member states in terms of the largest share of land and sea protected areas. According to the Polish Central Register of Nature Protection Forms (2023), 801 of animal species are protected, as well as 715 plant species. Human activities may cause problems for humankind, as well as for the environment, especially for animals and plants which are vulnerable and should be protected. Those activities include air and water pollution, acid rains, greenhouse effects, ozone hole and soil degradation (Godawska, 2021; Burchard-Dziubińska, 2019; Burchard-Dziubińska & Myagmarjav, 2019; Lebensztejn, 2016). Circular public procurements may in turn help to mitigate those challenges.

Italian LGUs, in contrast to Polish LGUs, are required, under Law No 221/2015, to follow green public procurement policies and award public procurement based at least on mandatory minimum environmental criteria (Hasanbeigi et al., 2019).

The authors must acknowledge certain limitations of the study. First, the results are not fully representative and do not allow for generalization. Secondly, the study is based on the truthfulness of

the answers given by LGUs. Thirdly, there may be factors other than local context indicators that may influence the choice of circular award criteria of circular public procurements. Finally, only twelve LGUs awarded circular public procurement based on all circular award criteria (social, economic, and environmental). Further investigation could determine whether other indicators, i.e. administrative, cultural, institutional, geographical, or technological, may have influenced the awarding of circular public procurements by LGUs.

## Conclusions

The use of social, economic, or environmental public procurement award criteria is very rare among Polish LGUs. Surprisingly, only twelve (2.06%) Polish LGUs, who participated in the study, awarded a circular public procurement. The model based on four independent variables, such as legally protected areas in hectares, number of inhabitants, engagement of LGUs in supporting local sustainable development process or type of LGUs, was able to correctly predict 100% of LGUs not awarding circular public procurements and only 8.3% of those awarding circular public procurements. The overall percentage of correct prediction was 98.1%. Importantly, in the presented model, key significance for awarding circular public procurements was attributed to the independent variable of legally protected areas in hectares within LGUs.

Taking into account that (a) circular public procurements are very rare among Polish LGUs, (b) awarding circular public procurements have many advantages (e.g. fostering local circular process), and (c) indicators, such as legally protected areas in hectares or engagement of LGUs in supporting local sustainable development could be influenced by national or regional public policy, a new national or regional policy instrument should be applied to enhance the number of circular public procurements procedures awarded by LGUs. These public policies can be reinforced by supra-local circular public procurement strategies and supra-local circular cooperation. This instrument may help to facilitate the implementation of circular public procurements that need sustainable entrepreneurs to apply for such tenders. Moreover, the EU should introduce, as soon as possible, at least minimal mandatory circular public procurement award criteria for all EU public procurements for goods, services and works, above the EU thresholds.

## The contribution of the authors

Conceptualization, M.G. and M.M.G.; literature review, M.G.; methodology, M.G.; formal analysis, M.G.; writing, M.G. and M.M.G.; conclusions and discussion, M.G. and M.M.G.

The authors have read and agreed to the published version of the manuscript.

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## ZAMÓWIENIA PUBLICZNE O OBIEGU ZAMKNIĘTYM: MIT CZY RZECZYWISTOŚĆ? W KIERUNKU TRANSFORMACJI DO GOSPODARKI O OBIEGU ZAMKNIĘTYM

**STRESZCZENIE:** W artykule poruszono problematykę cyrkularnych zamówień publicznych w ramach gospodarki o obiegu zamkniętym. Celem artykułu było zweryfikowanie związku pomiędzy udzielanymi przez jednostki samorządu terytorialnego zamówieniami publicznymi o obiegu zamkniętym, a kontekstem lokalnym tj. warunkami otoczenia w jakim działają jednostki samorządu terytorialnego. W części teoretycznej poruszane są takie zagadnienia jak praktyka samorządów w zakresie udzielania zamówień publicznych o obiegu zamkniętym oraz problemy związane z kryteriami udzielania zamówień publicznych o obiegu zamkniętym. Przeprowadzone badanie empiryczne ujawniło potencjał polskich jednostek samorządu terytorialnego dla gospodarki o obiegu zamkniętym, w obszarze zamówień publicznych o obiegu zamkniętym. Wyniki badania ankietowego wykazały jednak, że zamówienia publiczne o obiegu zamkniętym oparte na środowiskowych, społecznych i gospodarczych kryteriach oceny ofert, to mit, a nie rzeczywistość. Jednostki samorządu terytorialnego posiadają bardzo dużą siłę nabywczą, którą można wykorzystać do wspierania transformacji w kierunku gospodarki o obiegu zamkniętym. W końcowej części podkreślono potrzebę wprowadzenia na szczeblu unijnym minimalnych obowiązkowych cyrkularnych kryteriów oceny ofert w zamówieniach publicznych.

**SŁOWA KLUCZOWE:** gospodarka o obiegu zamkniętym, zamówienia publiczne o obiegu zamkniętym, rozwój zrównoważony, jednostki samorządu terytorialnego, zielone zamówienia publiczne