

## GREEN PUBLIC PROCUREMENT AS A CIRCULAR ECONOMY POLICY

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### Abstract

*Promoting the circular economy (CE) is a fundamental prerequisite of the proposed 'European Green Deal' and the transition to the CE is a strategic objective of the European Union. Cohesion policy and other established public policies are taking a new approach, being adapted to the requirements of sustainable development. This research aims to highlight that green public procurement in combination with circular procurement is an effective tool through which public authorities can stimulate the circular economy transition. The methodology is based on the literature review, outcomes from the own previous research, the processing for analysis of data with tables and graphs, and the analysis and synthesis of recent strategic documents from the EU and Romania. The conclusions and recommendations refer to the premises and prospects of green public procurement for the promotion of the circular economy, also with reference to the agro-industrial field as a priority sector.*

**Key words:** circular economy, green, policy, public procurement, intermediate consumption

### INTRODUCTION

Circular Economy (CE) is an innovative paradigm that means a revival of the economy and environment by prolonging the active and useful life of products and resources.

Circular economy is in a synergistic relationship with sustainable development, and the transition towards a circular economy is one of the main EU policies to help Europe meet its commitments under the UN Sustainable Development Goals (SDGs). It can be argued that many of the 17 targets are directly or indirectly affected by the circular economy, although apparently the most directly affected is SDG12, which aims to ensure sustainable consumption and production models [17].

In essence, the CE aims to decouple economic activity from the consumption of natural resources, while at the same time eliminating negative externalities, such as waste and pollution, from the system. An important insight is that, although intuitively, green environmental protection policies and regulations that are intended to internalize or

mitigate negative externalities can contribute to progress for the transition to the circular economy, in reality this process has proved more difficult and less well accepted by the society and stakeholders.

That is why, since 2015, through the first action plan for the EC, but especially through the new Circular Economy Action Plan in 2020, the European Commission has stated that special, concerted and coordinated strategic, legal, institutional and political steps are needed in order to implement the circular economy at all levels (community, national, regional, local) [12].

The European Green Deal (EC COM (2019) 640 final) [6] also sets out the transition to the circular economy as a related objective, and the latest CE Action Plan (COM (2020) 98 final) includes a section on 'economic justification', which suggests and supports the wider application of fiscal or non-fiscal policies and instruments, such as environmental taxation (including waste taxes), elimination of subsidies for non-renewable resources, application of special grants, circular public procurement.

This paper will exemplify some of these policies and strategies aimed at promoting the circular economy, as they have already been adopted and implemented in some EU member states.

A particular attention will be paid to green public procurement to analyse how this instrument can contribute to the CE and its degree of implementation in the EU. The premises and perspectives in Romania are analysed finally.

## MATERIALS AND METHODS

The objective of this research paper is to identify how public policies influence the circular economy CE at EU level and in Romania.

The research hypothesis is these policies, and in particular green public procurement, may significantly impact on the transition to the circular economy of national economies in the European Union, if properly designed and addressed.

The methodology is based on the following main procedures:

- literature review on the public policies adequate for a circular economy;
- outcomes from the own previous research;
- the processing for analysis of data with tables and graphs, for indicators of the government policies such as the Intermediate Consumption of the General Government (ICGG), as well as of the circularity of some EU countries, including Romania, measured by the synthetic indicator Circular Material Use Rate (CMUR):
- the analysis and synthesis of recent strategic documents from the EU and Romania regarding the role of the green and circular public procurement in promoting the circular economy.

## RESULTS AND DISCUSSIONS

### Conceptual background

The basic elements of CE are: reducing the total consumption of materials; product reuse by extending product life through repair, refurbishing; recycling; recovery of materials in production and use processes.

In addition, circular economy is operationalized on multiple levels: at the micro level (products, companies, customers), at the meso level (eco-industrial parks, economic sectors) and at the macro level (region, nation) (Ghisellini et al, 2016; Kirchherr et al, 2017) [18, 20].

In order to achieve the transformation from a linear to a circular system, some practices and solutions from different stages of the value chain are taken into account, accomplished by:

- Closing the loops of materials, which can be achieved by replacing raw materials or new products with secondary materials and second-hand products or parts, repaired or reconditioned;
- Slowing down material flows by extending the service life of products through better design, maintenance and repairs;
- Reduced material flows by using fewer resources per product or using fewer products to provide the same service to society.

It is generally considered that the focus has been more on direct administrative interventions, supported by policy and informational tools, while the potential of financial and economic instruments for a CE has not been fully employed yet (Hartley K, van Santen R, Kirchherr J, 2020) [19].

Similarly, recent rigorous research approaching the public policies and business models suitable for the circular economy (Wasserbaur et al, 2022; Platon et al, 2022, Platon et al, 2023; Constantinescu et al, 2022) [31, 26, 27, 5] confirmed the significance of these policy areas and highlighted new areas such as circular eco-innovation.

In the EU, the importance of public procurement has increased in the last about 20 years, as a policy for stimulating demand and eco-innovation (Edler and Georghiou, 2007) [7]. These public acquisitions may impact on the resource productivity and economic efficiency in the economy, mainly by the specific criteria used (Bratt et al. 2013) [6].

In order to promote the sustainable development objectives, the concept of Green Public Procurement (GPP) was introduced in the EU, as the process used by public

authorities to buy goods or services with a lower environmental impact (of their life cycle) as compared to other similar functionality goods and works to be procured. (COM (2008) 400) [4].

The GPP is welcome but nowadays the transition to a green, circular economy demands a more dedicated approach. Consequently, the EC has introduced the concept of circular public procurement (CPP) as: "the process by which public authorities purchase works, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimising and in the best case avoiding the negative impacts and waste creation in the environment. (European Commission, 2017) [10].

The circular public procurement (CPP) is a component of the green public procurement applied in some EU member states. For instance, in 2013 the Dutch government issued a Circular Procurement Green Deal, stating that public and private entities start circular procurement pilot projects to develop capacity, sharing insights and best practices from stakeholders. About 100 pilot projects were initiated in the next 3-4 years, of over EUR 100 million value (One Planet Network, 2019) [25].

Table 1. Policies recommended for circular procurement in the European Union

<b>Policies to expand circular procurement by the EU and member states</b>
Reorientation of procurement rules towards circular procurement (with circular products favoured over linear alternatives)
Procurement standards through thresholds for percent of recycled content, reusability, and eco-efficiency
Continuous expansion of CP to create markets for circular product producers

Source: Adapted from (Alhola et al., 2019) [1].

A recent study on the role of public policies in promoting Circular Economy has used among other methods, the interview with stakeholders and CE experts who were convinced and optimistic about circular (public and private) procurement as an efficient and necessary lever in CE transition. However, the main conclusion of the study

was that the direction to a holistic and sustainable circular procurement CP regime requires not only reforms of tendering criteria but also a change in the way governments conceptualize CE (Hartley K et al.(2020) [19]. Another study concluded that public procurement can promote CE and related business models through specific criteria and requirements, such as: extending life-span of products, resource efficiency and/or intensity, higher recycling of materials. These conclusions and recommendations are summarized in Table 1. (Alhola et al., 2019) [1].

### **The importance of the public procurement in European Union countries**

Public procurement (PP) is represented by a purchase by governments and state-owned companies of goods, services and works and has a direct impact on the economy. European national governments allocate approximately EUR 2 trillion for public procurement annually, accounting for 14 percent of EU GDP (European Commission, 2019) [11], meaning a quite large amount for green and/or circular procurement may be feasible.

According to a recent paper, public procurement could represent an important tool to foster the green transition in the European Union (Sapir A. et al., 2022) [30]. Thus, the level of the estimated public expenditure as %GDP varies from only 4% in Portugal to around 18% in Finland, 15% in France, 14% in Belgium and 8% in Romania (Figure 1).

However, in order to make our research deeper and be able to search for a more direct correlation between the public procurement financial policy instrument and the transition to circular economy in the EU member states, it is also useful to know how to estimate the size of the PP (as % of the GDP).

General government procurement is defined as the sum of intermediate consumption (goods and services purchased by governments for their own use), gross fixed capital formation (acquisition of capital excluding sales of fixed assets) and social transfers in kind via market producers (goods and services purchased by government and supplied to households) (OECD, 2011) [24].

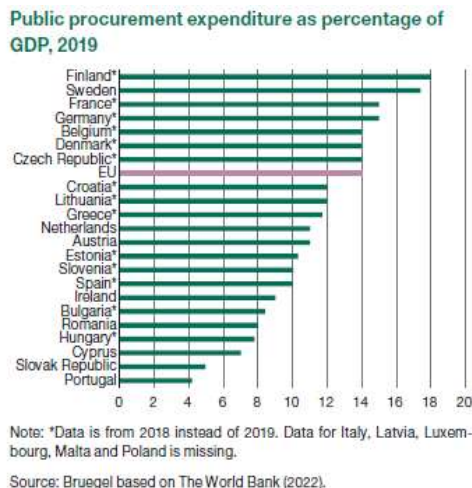


Fig. 1. Public procurement expenditure as % of GDP in selected EU countries in the year 2019

Source: Bruegel. org., Bruegel Annual Meetings, 607 Sept. 2022, <https://www.bruegel.org/events/bruegel-annual-meetings-2022>, Accessed on December 10, 2022 [3].

From the perspective of the transition to the circular economy, in the EU countries, the most important indicator of public procurement, for which we will carry out more detailed analyses, is the Intermediate Consumption of General Government, as it appears in the Government Finance Statistics database of Eurostat.

### Intermediate Consumption of General Government (% GDP)

The government intermediate consumption (ICGG) involves the purchase of goods and services by general government. Intermediate consumption is a concept of national accounts that measures the value of goods and services consumed as inputs by a production process. It excludes fixed assets whose consumption is recorded as consumption of fixed capital.

Intermediate consumption is valued (recorded) at purchase prices. This indicator may be relevant to the extent that a circular public procurement policy is applied, given that the statistical-economic literature suggests that the level of this indicator is reduced as the transition to the circular economy takes place (Mihai et al., 2018) [21].

With regard to the evolution of the intermediate consumption of general government (ICGG) indicator, expressed as % of GDP, over the period 2009-2020, Table 2

and Figure 2 show some small differences between the EU aggregates (27 states) and the Euro area (EA, 19 states) respectively, as well as the annual minimum and maximum values of this indicator, in the EU Member States.

Table 2. Intermediate consumption of general government in the EU and Euro Area (ICGG, % GDP, 2009-2020)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average
EU	5.8	5.8	5.7	5.7	5.7	5.7	5.6	5.6	5.5	5.5	5.6	6.1	5.69
EA	5.5	5.5	5.4	5.5	5.5	5.4	5.4	5.4	5.3	5.3	5.3	5.9	5.45
Diff.	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.24
Min. EU	4.2	4.1	4.1	4.1	3.9	3.6	3.6	3.5	3.5	3.4	3.5	4	3.79
Max. EU	10.3	10.4	10.3	10.7	11	10.9	11	10.8	10.8	10.7	10.7	11.3	10.74
Romania	6	5.5	5.8	6	5.7	6	5.9	5.6	5.2	5.2	5.6	6	5.71

Source: [14].

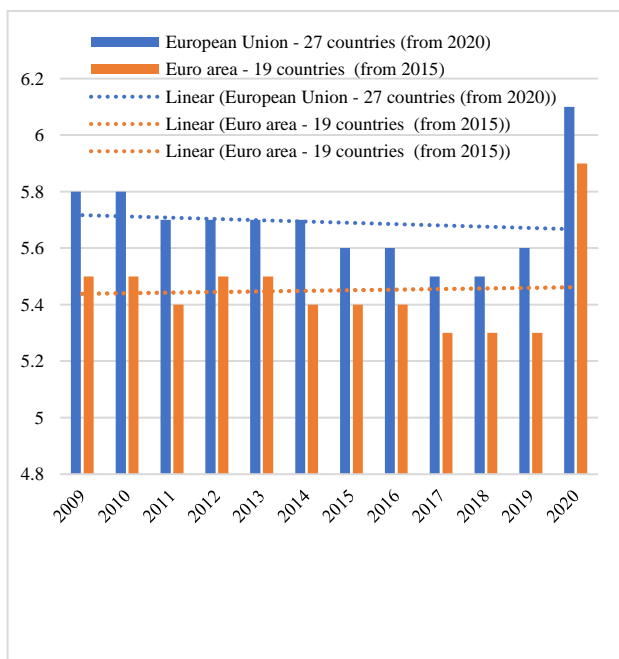


Fig. 2. Intermediate consumption of general government (ICGG) in the EU and EA (% GDP, 2009-2020)

Sources: Own processing of Eurostat data, 2023, Government, expenditure and main aggregates, [https://ec.europa.eu/eurostat/databrowser/view/GOV\\_10A\\_MAIN/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/GOV_10A_MAIN/default/table?lang=en), Accessed on October 10, 2022 [14].

In terms of annual evolution, Table 2 also shows the annual evolution of the lowest (EU minimum) and the highest ICGG levels (% GDP) in all the EU countries, respectively. The EU minimum varies between 3.4% (GDP) in Ireland (in 2018) and up to 4.2% in Belgium (in 2009). The maximum value of the indicator was 11.3 % (GDP) in Finland, reached in 2020 but in general, Finland has

the highest level of ICGG, of over 10%GDP, in the entire period 2009-2020 (Figure 3).

In Romania, the trend was slightly decreasing, with a maximum of 6% GDP in 2009, 2012 and 2020 and a minimum of 5.2% of GDP in 2017 and 2018; this trend is welcome from the point of view of implementing the circular economy, especially if green and circular public procurement is carried out.

It may be noted from Figure 3 that in the other countries the average ICGG was between 5-8% GDP, in 2009-2020.

In Figure 3 the 27 EU countries are highlighted in increasing order of their average level of ICGG (% GDP) to see which are the smallest and the largest general government intermediate consumers in the European Union.

It can be noted that, in terms of the level of percentage to GDP ratio, in the period 2009-2020, ICGG had a stable or slightly decreasing trend, both at EU level and in EA, with an average annual level in the EU of 5.69% (GDP) and 5.45% (GDP) in EA, respectively, so in the Euro area the indicator level was at least 0.2 (%GDP) lower, every year.

In 2020 this trend stopped and the indicator increased significantly compared to 2019 (by 9% in the EU and 11% in EA) due to the Covid-19 pandemic and the quarantine period, which brought measures to increase the public procurement of services, medical supplies and masks, medicines, etc.

On the other hand, in order to have an idea of the correlation between ICGG as a proxy for green public procurement and the circular economy (CE) it is important to measure also the degree of circularity in the national economies of EU member states.

In this respect it may be considered the synthetic CE indicator Circular Material Use Rate (CMUR) in the EU. CMUR (unit of measure %) is used to monitor progress towards a circular economy in the secondary raw materials area.

Circular use of materials, also known as circularity rate, is defined as the ratio of circular use of materials to the overall use of materials.

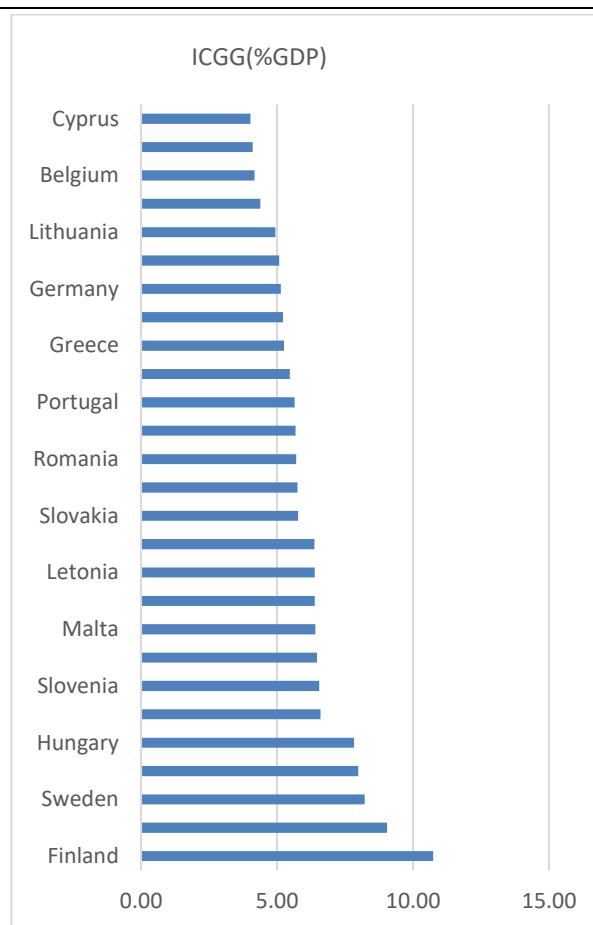


Fig. 3. The average level of the indicator Intermediate consumption of general government, EU-countries, 2009-2020

Sources: Own processing according to Eurostat data, Government, expenditure and main aggregates, [https://ec.europa.eu/eurostat/databrowser/view/GOV\\_10A\\_MAIN/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/GOV_10A_MAIN/default/table?lang=en), October 10, 2022 [14].

A higher CMUR value means that more secondary materials replace primary raw materials, thereby reducing the environmental impact of raw material extraction. The data source is the European Statistical System (ESS), and the data provider is the Statistical Office of the European Union (Eurostat).

Figure 4 shows the CMUR indicator, by EU country, for the period 2010 - 2020 (average, in %). It can be seen that the most advanced countries in the EU are: the Netherlands, with a CMUR value of 27.5%; France (18.6%) and Belgium (18.5%). The degree of circularity drops to a minimum value of 1.8% (Ireland). Romania registered also a low average CMUR of only 2.1%, in the period of analysis.

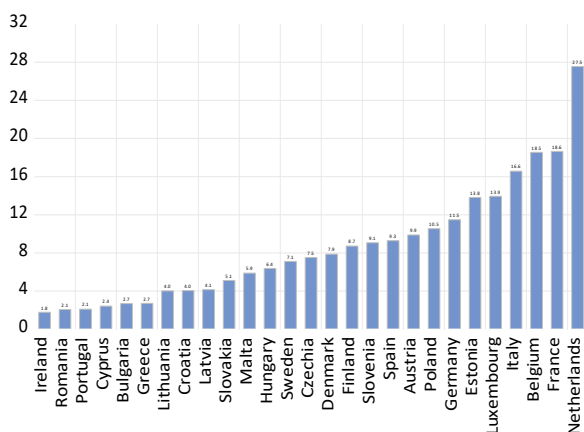


Fig. 4. CMUR average, by country, 2010 – 2020 (%)  
 Source: own compilation from Eurostat, EEA, CMUR, Circular material use rate in Europe, <https://www.eea.europa.eu/ims/circular-material-use-rate-in-europe>, Accessed on October 10, 2022 [15].

By comparing Figure 3 and Figure 4 it may be noticed that in general, EU countries with a lower average intermediate consumption of general government (2009-2020) such as: Luxembourg, Belgium, France, Germany are also those with advanced CE, measured by the CMUR. This fact suggests that indeed, a lower intermediate consumption of the general government is an indicator of circular economy progress, that should be further researched through more advanced econometric and modelling techniques.

A lower ICGG may be eventually obtained by Circular Public Procurement since that means reusing and recycling of resources and products already acquired. However, green and circular public procurement may be developed also by greener and circular criteria, rules, and orders within the public sector. Besides special criteria for circular CPP concerning the waste management, governments should also embrace and promote a circular life-cycle costing (Hartley K et al.(2020) [19].

### Performance and prospects of public procurement for promoting CE in the European Union and Romania

The policy of public procurement in the EU countries is ruled by EU legislation but only for contracts with a value higher than a threshold (different from sector to sector) and in international tenders.

The national public procurement rules are applied in less value tenders. (European Commission, 2022) [9].

There are not yet many precise GPP and even less CPP mandatory targets at the EU level, so the size of the green and even more important, circular public procurement depends on the national strategies and action plans of the EU member states.

These strategies and plans are quite different, since there are countries (Romania, Estonia, Hungary, Luxembourg) without a National Plan of GPP or with no national GPP targets while others have set a minimal share of all PP contracts to include green criteria (European Commission, 2021) [8].

In the most circular economy of the European Union, Netherlands (Figure 4), the share is 100%, a fact that seems to prove the importance of the GPP as circular economy policy.

In the respect of PP as a driver of CE in the EU, a recent survey on the circular economy policy innovation and good practice shows that lately, the Member States have introduced CE elements into five different policies, on average, with a wide horizontal scope of circular economy.

The number of countries reporting having introduced CE elements in public policies is quite high: 17 in Waste management, 13 in the Energy and Climate Plan, 12 in Waste prevention and 9 in their National development programmes (EEA, 2022) [13.]

It is obvious that in many EU countries, the public procurement is already a significant CE policy, as may be observed in Figure 5.

Romania is still among the least pro-active and advanced EU member states in GPP (including CPP) although in 2020, public procurement represented approximately 9% of Romania's gross domestic product.

This demonstrates high potential to determine the evolution of the national economy. However, in order to better respond to the current requirements and strategic needs of GPP and CPP, Romania will soon reform its public procurement system in the next period, this being an obligation assumed by the National Recovery and Resilience Plan (PNRR).

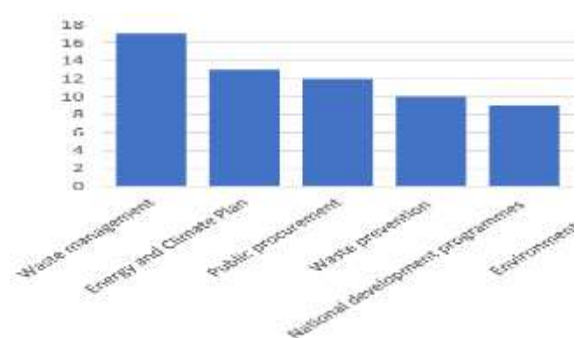


Fig. 5. Number of EU countries with CE elements in their public policies

Source : Extracted and adapted from (EEA, 2022)[13].

The National Strategy in the field of Public Procurement (SNAP) 2023 – 2027 [23] is a project under debate until the end of March 2023. Unfortunately, the justification for the draft of the new strategy shows that, in addition to general problems identified in strategic public procurement, in Romania the exact degree of use of ecological criteria in public procurement processes is not known. According to the National Strategy for Public Procurement draft, the elaboration and adoption of a National Green Procurement Plan is also expected to be carried out in the first quarter of 2024. (ANAP, SNAP 2023-2027) [23]. Nevertheless, special attention will be paid for green and circular public procurement of agri-food products, belonging to the priority groups of products or services identified as the most suitable for greening by means of public procurement [22].

Actually, the characteristics and opportunities for circular economy business models such as industrial symbiosis in the agri-food sector has been analysed in previous research by (Frone DF, Frone S., 2017) [16].

Last but not least, the recently adopted National Strategy for the Circular Economy in Romania (2022) [28] and the associated Circular Economy Action Plan (CEAP) will further foster the CE benefits of the resource recovering, reusing and recycling and lowering the negative environmental and climate impact, in progress with the sustainable development and European Green Deal strategic goals.

In the newly issued draft of the National Action Plan for Circular Economy in

Romania (2023), the Action 4 is dedicated to Integrating circularity criteria into public procurement. In this respect, it is stated that circular public procurement (CPP) could play a key role in increasing the use of circular materials in Romania (CMUR), which is currently (2022) well below the EU average (1.5% in Romania compared to 12.8% average in the EU) and which has deteriorated (from 2.5% in 2018 to 1.9% in 2019) in recent years. Public procurement can also stimulate demand for products that meet reparability and recyclability standards.

The ongoing revisions and developments of the GPP (Green Public Procurement) policy framework offer the possibility to extend the scope to circularity considerations as well. The Government of Romania is currently developing a national GPP plan to set targets and adopt a monitoring framework to ensure implementation.

However, further steps will be needed to increase its adoption. For example, at present, the penalties for non-compliance are too low and public authorities are often not aware of the importance and benefits of green and/or circular procurement. Consequently, the National Plan for Global Procurement, which is currently being developed by the National Agency for Public Procurement (ANAP), should also set binding targets for circular procurement. (NAPCE-Romania, 2023) [29].

## CONCLUSIONS

Circular economy (CE) is the new economic paradigm of reuse, recovery and recycling of resources, reducing the negative environmental impact of production and consumption. The CE is now not only an academic ideal concept but has become an actual strategic objective of the sustainable development and European Green Deal, so all the EU member states must make efforts for a rapid and efficient transition towards the new, greener circular economy.

Some EU countries have been very proactive in promoting the CE by national strategies or at least by dedicated policies such as the green and circular procurement that seem to have been quite efficient as shown by our

analysis performed with the use of the ICGG indicator (%GDP). Unfortunately, Romania is among the least advanced countries in the CE transition, as proved by the penultimate place in Figure 4 (average rate of circular material use, in 2009-2020).

This is the reason why lately Romania has started many projects and adopted the National Strategy for a Circular Economy (2022). Besides, the expected national CEAP (2023) underlines the significance of GPP and CPP as effective policy instruments to implement circular economy in Romania.

Together with the new correlated National Green Procurement Plan the new, circular policies are expected to promote more effectively and rapidly the circular economy business and consumption models at all the levels and in the most suitable sectors, among which the agri-food is a priority one.

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