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Analysis of local self-government capacities for creation of preconditions for transition towards circular economy

- with recommendations for practical policies at local level -



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INTRODUCTION

Foreword

The basic goal of circular economy (CE) is the tendency towards sustainable use of resources and elimination of waste. Acceptance of this new business philosophy has effect on both economic actors and decision-makers whose decision have direct impact on defining of strategic and institutional framework for introduction of CE, but further implementation of adopted policies as well. European “Green Deal”, which entered into effect in the end of 2019, is focused on transformation of the existing economic model by development of new economic opportunities, for instance, through implementation of CE principles and improvement of citizen life quality. It simultaneously laid out a roadmap for strengthening of more efficient use of resources through transition to CE, which, besides direct impact on EU member-states, will also have impact in the process of accession. In the area of (municipal) waste management, changes will relate to promotion of the model of separate waste collection, so as to ensure cleaner materials (secondary raw materials) for further production process, opening up at the same time the possibility for new jobs as well.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) has, since 2015, been active in Serbia with the aim to introduce the concept of circular economy. Among others, within the project “Climate Sensitive Waste Management (DKTI)”, and in cooperation with Serbian Ministry of Environmental Protection, Chamber of Commerce and Industry of Serbia, and 17 local self-governments implements activities aimed at promotion of the waste management system through implementation of CE principles.

Cooperation between the GIZ Project and local self-governments (LSGs) in this process has been primarily aimed at improvement of the waste management system, both at local level and within the established regions, and has resulted in certain improvements. Since 2018, the GIZ Project has supported 17 LSGs in development of their local waste management plans, action plans for introduction of primary separation, and the model for collection and treatment of the biodegradable waste stream, all in line with CE principles. Promotion of inter-municipal cooperation is an important focus of the GIZ Project, thus support was aimed at creation of regional waste management structures, which was accompanied by composition of draft regional waste management plans.

In the course of their long-year cooperation with Standing Conference of Towns and Municipalities (SCTM), LSGs in Serbia were able to take part in numerous activities exchanging experiences and practices in promotion of utility services at local level, as well as environmental protection policies. With support of colleagues from SCTM throughout the process of drafting of this Analysis (composed before the adoption of the “Green deal”), we wanted, among others, to answer to the following questions: which role local self-government has in the process of transition to the circular economy model; whether and to what extent current condition of local economies facilitates implementation of CE principles; and which preconditions local self-government needs to meet to support transition to CE principles. This research, together with accompanying recommendations, is an additional step ahead in support and promotion of not only capacities of partner municipalities from the GIZ Project, but all LSGs in the process of adoption and implementation of circular economy principles in general.

GIZ Project “Climate Sensitive Waste Management (DKTI)”

1. Introduction

Circular economy is one of the main topics for European policymakers, especially when it comes to environmental protection, economic development, and overall social progress. However, it appears that the genetically accepted opinion of experts and practitioners is that in Serbia circular economy is still a relatively new, insufficiently familiar, promoted, and discussed topic. This statement may apply both to decision- and policymakers, and business entities and citizens. According to the same opinion, such type of statement is especially embedded at local level.

Starting from such statement, and in accordance with joint objectives and strategic determinations of the GIZ Project “Climate Sensitive Waste Management (DKTI)” (GIZ Project) and Standing Conference of Towns and Municipalities, the document “Analysis of local self-government capacities in terms of creation of conditions for transition to circular economy, with recommendations for practical policies at local level” was prepared in the attempt to, on the one hand, either confirm or refute such claims, while bringing the idea of circular economy closer to LSGs, to present its advantages, its driver factors, and benefits on the other, same as barriers one should count on in the process of transition to the new local economy model. The Analysis is also to contribute to larger social acceptance of circular economy principles.

It needs to be noted that this analysis, prepared by experts from Standing Conference of Towns and Municipalities with support of the GIZ Project, is not a solitary document or attempt to promote and accelerate transition of domestic economy to the circular morel, but is a part of a much broader front of activities and initiatives which have been and are launched by Serbian Ministry of Environmental Protection and Chamber of Commerce and Indusry of Serbia (CCIS) as well as international partner organizations such as German Organization for International Cooperation (GIZ), United Nations Development Programme (UNDP), and Organization for Security and Cooperation in Europe (OSCE).

The document comprises two units, one of which is based on extensive analysis of a broad base of literature on circular economy available on the Internet, with use do domestic materials such as the publication “Circular Economy as an Opportunity for Development of Serbia”, composed for the purposes of OSCE Mission to Serbia, or Draft strategic document for circular economy, prepared for the purposes of the Ministry of environmental protection, also with support of the GIZ Project, while the other half comprises a research of familiarity and positions of representatives of local self-governments (LSGs) and public utility companies (PUCs) on circular economy, conducted in the form of and survey questionnaire and targeted interviews.

Finally, based on the desktop analysis of the literature, regulatory framework in Serbia, and the EU, insights into examples of good practices from European towns and regions, and responses obtained from representatives of towns and municipalities in Serbia, a list of recommendations for decision-makers at local level was defined which, if there is awareness and political will, may assist in transition towards circular economy.

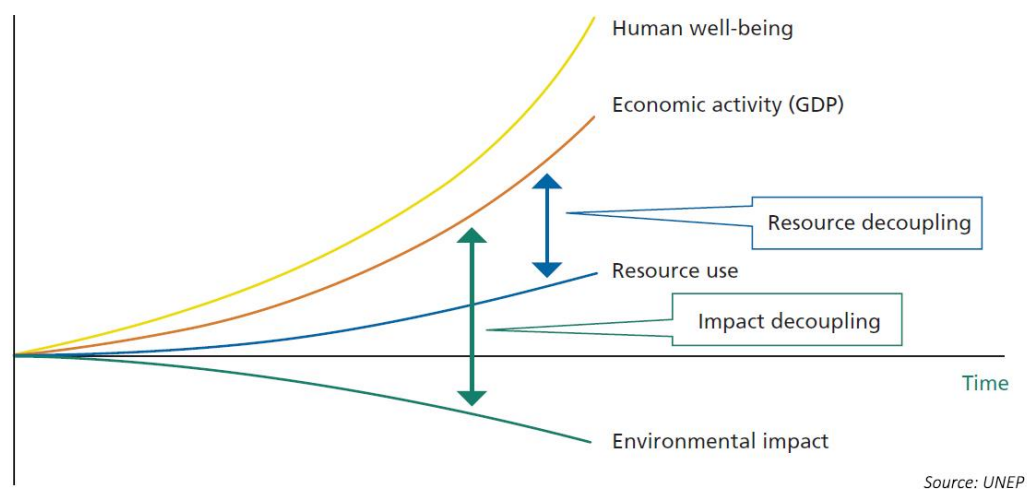
PART 1

DESKTOP ANALYSIS

2. About circular economy

World-wide, same as in Serbia, the linear economy model based on the principle take, make, use, and dispose is still dominant. This model is based on achievement of economic growth social well-being through relying on exploitation and use of easily accessible mineral raw materials, fuels, and other natural resources with lower market prices. However, nowadays it is clear, and also corroborated by current policies of numerous countries, including the EU, that such a model is environmentally, socially, and economically unsustainable over a longer period of time. According to assessments of *Footprint Network*¹, the current model of economic growth, based on exploitation of natural resources, led humankind into the situation where the quantity of resources used over the period of seven months equals the quantity of resources which all environmental systems on the planet could regenerate in one year. In other words, our generation uses, to its benefit, “the Earth’s capital” of future generations.

Unlike linear economy, circular economy is regenerative in essence, and tends to preserve maximum usability, usefulness, and monetary value of products (as a whole or their components), material, and energy at any moment. This new economic model tends to separate global economic development from increasing demand for limited natural sources, such as mineral raw materials, fossil fuels, but other non-renewable or slowly renewable resources as well. Due to its nature, circular economy may be an important part of solution to permanently growing challenges of the modern world, and one of responses to requirements of sustainable development, reconciling the need for economic growth and social well-being on the one hand with limited nature of natural resources on the other.



Picture 1. Decoupling economic growth and natural resources usage

Even though there are differences in opinion about its scope as well as significant amount of criticism on account of the large number of definitions², the currently dominant position in professional public at the European Union level is that in combination with new technologies, circular economy is capable of achieving several basic intentions simultaneously. When it comes to economy, it may create growth and jobs, while when it comes to environmental protection, it may reduce the carbon print and have positive impact on climate changes.

¹ <https://www.footprintnetwork.org/>

² Kirchherr, Julian & Reike, Denise & Hekkert, M.P.. (2017). Conceptualizing the Circular Economy: An Analysis of 114 Definitions. SSRN Electronic Journal. 127. 10.2139/ssrn.3037579

By passing of the EU Action plan for circular economy in the end of 2015, and then by adoption of the so-called Circular economy package³ in 2018, the European Commission laid before its member-states very ambitious goals in terms of recycling of municipal and packaging waste, disposal, system of separation at source, extended producer responsibility, and food waste management. The European Commission, but independent experts too, assess that interventions in line with this legal framework could produce positive effects, both in terms of economy and employment, and environmental protection and promotion.

The study “Growth Within: A Circular Economy Vision for A Competitive Europe”⁴ provides new evidence which corroborates the forecast that, through implementation of circular economy principles and technological revolution, Europe will increase its resource productivity as much as up to three percent a year, which would give EU economy an additional benefit in terms of economics of primary resources of as much as 0.6 billion EUR a year by 2030. Beside this, external and internal activities which are not directly related to natural resources could yield billions of EUR in comparison to the current situation.

The report “Impacts of circular economy policies on the labour market”⁵ from 2018 envisages that by implementation of circular economy gross domestic product (GDP) in the European Union will experience annual growth of by almost 0.5% more as compared to the *status quo* scenario by 2030. According to the circular economy scenario, the net growth of about 700,000 jobs is expected as compared to the baseline. According to projections of the International labour Organization (ILO) stated in the publication *Greening with Jobs*⁶, according to the circular economy scenario global employment would grow by the rate of 0.1% at annual level by 2030, in comparison to the usual scenario. According to findings from the same publication, at global level, employment in the service sector would grow by about 50 million jobs, while in the waste management sector it would grow by about 45 million. Beside this, the circular scenario could have significant positive effects in terms of creation of the need for new jobs in the “common economy” sector, same as in the case of activities oriented to repair and rehabilitation of consumer products.

Even though positive effects of circular approach onto global CO2 emissions, same as on global, European, or national economies are obvious, it appears that these effects are even more prominent at the level of towns, municipalities, and local communities. Benefits for the local level comprise inclusion of local suppliers in global supply chains, both of materials and fuels, creation of jobs in the waste management sector which is under competence of local self-government, creation of jobs in the service sector, especially in the “common economy” area and activities dealing with repair, rehabilitation, and return of objects and equipment into use. Through re-use and recycling, circular economy contributes to mitigation of negative environmental effects of waste on local environment, while, through engagement of locally available renewable sources and promotion of energy efficiency, it contributes to reduction of air pollution. Finally, circular economy may largely contribute to keeping added economic value in local communities and contributing to their further development and prosperity. Due to all this, implementation of circular economy principles in local context becomes an exceptionally current and important topic at local level.

³ Commission Communication COM(2015)614 final "Closing the loop - An EU action plan for the Circular Economy"

⁴ Growth Within: A Circular Economy Vision for A Competitive Europe, the Ellen MacArthur Foundation, the McKinsey Center for Business and Environment, Stiftungsfonds für Umweltökonomie und Nachhaltigkeit, June 2015

⁵ Impacts of circular economy policies on the labour market, Cambridge Econometrics, Trinomics, and ICF, May 2018

⁶ World Employment and Social Outlook 2018: Greening with jobs, International Labour Office, Geneva: ILO, 2018

2.1. Basics on the concept and circular economy principles

Even though the term has been in use since 1970s⁷, and although there is an impression that it is self-explanatory, there is still not a single definition and overall consensus in the professional public in relation to the term circular economy. In general terms, circular economy may be deemed an economic system which is aimed at elimination of waste and continual use of resources⁸. The circular economy model, based on the principle of circulation of materials and products as long as possible is opposed to the linear model which is based on exploitation of resources and their transformation into products which are permanently disposed upon use. Analysis of different definitions may lead to the conclusion that there are three usual theoretical paradigms of circular economy⁹: minimization of input of raw materials and output of waste materials from the economic system; preservation of value of resources within the economic system as long as possible; and return (reintegration) of products into the economic system upon the end of their life cycle.

When it comes to principles, in literature and on the Internet three basic principles on which circular economy is based are most frequently encountered in literature and on the Internet. According to Ellen McArthur Foundation¹⁰, the leading global foundation for research and development of policies in the area of circular economy, these principles are the following: elimination of waste and pollution through promotion of product design; preservation of products and materials in use as long as possible; and restoration of natural systems. The first principle comprises detection and elimination of undesired effects through observation of the process of planning, design, and production. The essence of this principle is to create products and processes which, by their nature, have minimum possible impact to the environment and minimum consumption of non-renewable natural resources. The second principle implies optimization of yield of resources, i.e. achievement of the maximum level of use of materials, components, and products through their keeping in the cycle of use as long as possible. The third principle relates to preservation and promotion of natural capital. This is achieved by control of use of limited natural resources and transition to use of renewable materials and sources of energy.

⁷ Geissdoerfer, M., Savaget, P., Bocken, N., & Hultink, E. (2017). The Circular Economy – A new sustainability paradigm?. *Journal of Cleaner Production*, 143 (1), 757-768. <https://doi.org/10.1016/j.jclepro.2016.12.048>

⁸ https://en.wikipedia.org/wiki/Circular_economy

⁹ Suárez Eiroa, Brais & Fernández, Emilio & Martínez, Gonzalo & Soto-Oñate, David. (2019). Operational principles of Circular Economy for Sustainable Development: Linking theory and practice. *Journal of Cleaner Production*. 214. 952-961. [10.1016/j.jclepro.2018.12.271](https://doi.org/10.1016/j.jclepro.2018.12.271).

¹⁰ <https://www.ellenmacarthurfoundation.org/circular-economy/concept>

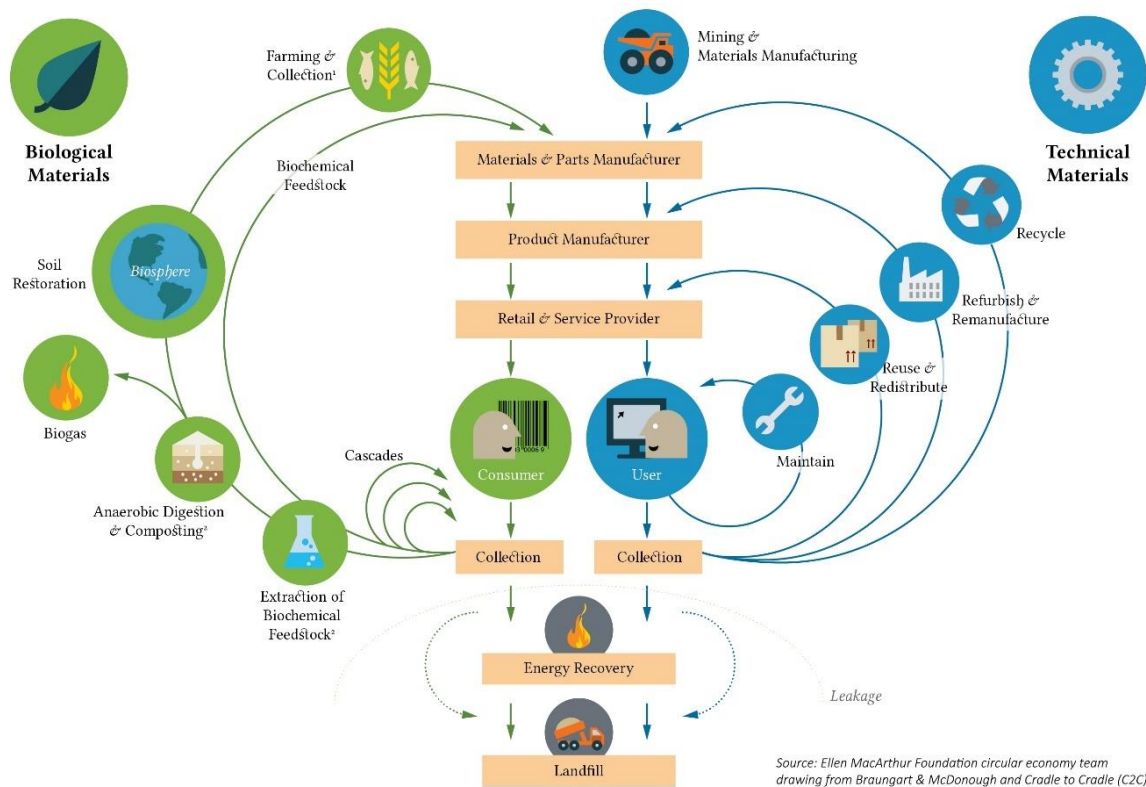


Figure 2. Scheme of circular economy system

Even though there is not a single position when it comes to the definition, it appears that this type of understanding does exist in relation to the three levels of implementation of circular economy¹⁰: the micro level, the mezzo level, and the macro level. The micro level relates to implementation of circular economy principles in companies and development of new circular business models. At this level, approaches such as cleaner production, energy efficiency, or industrial ecology are integrated in production processes. The mezzo level relates to interaction among various business entities which may lead to industrial symbiosis. The macro level relates to implementation of circular principles on a broader social level, i.e. at the level of local communities, towns, regions, states, and the international community.

Practical activities implemented by business entities, which are most frequently related to circular economy¹¹, may be divided in six groups: transition to use of renewable sources of energy and materials; extension of useful product life through design and maintenance; promotion of production efficiency and elimination of waste from supply chains; preservation of components and materials in a closed cycle through re-processing and recycling; virtual delivery of goods and services; and implementation of new technologies and replacement of old materials with new and renewable ones.

Finally, transition to circular economy may not be reduced merely to adaptations aimed at minimization of negative impact of linear economy, but is a systematic step ahead which contributes to development of long-term resilience on part of societies and local communities against climate changes and economic turbulences, creates business opportunities and new jobs, and has durable positive impacts on the environment and the society¹².

¹¹ Mapping the benefits of a circular economy, McKinsey Quarterly, June 2017

¹² <https://www.ellenmacarthurfoundation.org/circular-economy/concept>

2.2. The EU circular economy package

In December 2015, the European Commission passed the Action plan for circular economy¹³ in order to simulate employment, growth, and investments, and develop carbon-neutral, resource-efficient, and competitive economy¹⁴. The Action plan envisaged 54 activities in different domains of economic activities within the European Union, including sectors of production, i.e. eco-design, consumption, waste management, secondary raw material market, as well as other specific activities.

The Action plan envisages modifications of four sets of legal regulations which regulate the area of waste management. The revised legal framework on waste, which entered into force in July 2018, laid clear goals for minimization of impact of waste onto the environment, and guidelines in relation to recycling and long-term waste handling. The key elements of the revised waste management framework are goals which the European Union, i.e. its member-states, need to achieve in the period between 2022 and 2035. Among other things, these goals also imply the following:

- Recycling of 65% of municipal waste by 2035;
- Recycling of 70% of packaging waste by 2030, with specific objectives for recycling of individual packaging materials. Paper and cardboard - 85%; ferrous metals - 80%; aluminium - 60%; glass - 75%; plastic - 55%; wood- 30%;
- Landfilling of no more than 10% generated waste by 2035;
- Extension of the obligation of separate waste collection to include hazardous waste from households by the end of 2022; bio-degradable waste by the end of 2023; and textile by the end of 2025;
- Establishment of minimum requirements in terms of extended producer responsibility schemes in order to [promote the manner and cost-effectiveness of separate waste stream management.
- Strengthening of prevention and taking of separate measures for fight against food and marine waste, as a contribution to meeting of EU obligations in accordance with sustainable development goals¹⁵.

Besides the directives which regulate the area of waste management, the circular package also implies the Directive on eco-design¹⁶, which lays minimum energy efficiency standards for products such as boilers, computers, and household appliances. The aim of this directive which should, upon initiative of European Parliament¹⁷, in future be extended to include other product aspects beside energy efficiency, such as durability, possibility of repair, possibility of disassembling, and recyclability, is to diminish impact of different product categories onto the environment.

According to the Action plan, activities relating to the market of secondary raw materials envisage development of quality standards for secondary raw materials, especially plastic, revision of regulations on fertilizers, promotion of safe and cost-effective use of water, development of legislative which sets minimum requirements for re-use of water for irrigation and nourishment of ground waters, and other activities.

The package of activities relating to consumers in the European Union is extensive and treats issues such as better implementation of existing regulations on product guarantees, innovation of instructions

¹³ Closing the loop - An EU action plan for the Circular Economy COM/2015/06

¹⁴ COM (2019) 190 final

¹⁵ Sustainable Development Goals (SDGs)

¹⁶ Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of eco-design requirements for energy-related products

¹⁷ European Parliament, Resolution of 31 May 2018 on implementation of the Ecodesign Directive, 2017/2087(INI)

against unfair business practices, passing of requests in terms of information on product reparability in the context of eco-design, and promotion of effectiveness of eco-labels and other activities.

Specific activities envisaged in the Action plan relate to European strategies for plastic and plastic materials, food waste, construction and construction waste, biomass and bio materials, innovations and investments, critical raw materials, and monitoring.

Having in mind the dedication of the European Union to achievement of sustainable development (SDG)¹⁸, as well as strategic affiliation circular economy, one of the main instruments to achieve them, especially Goal 12 (SDG 12) – Provision of sustainable patterns of production and consumption – it is certain that European regulations in the future period will be additionally improved and developed in direction of introduction of circular principles in all areas of economic activity, especially in terms of consumption, design, and product life cycle.

2.3. Enabling factors and barriers for circular economy

Same as in the case of any other new concept, especially one which calls for radical changes in human thinking and behaviour and a change in the manner of business-making in business entities, success of circular economy will largely depend on recognition of enabling factors and their use, as well as on identification and finding of ways to overcome barriers. Enabling factors and barriers may be recognized both at the public policy level and company level.

One of key factors at the public policy level recognized by numerous researchers¹⁹ which is important for development of circular economy is incorporation of its principles in the strategies framework both at national and local level. The best case is passing of a national circular economy strategy with clear division of responsibilities among actors and specific and measurable objectives defined. The second important factor is association of actors, i.e. development of stakeholder platforms at national, and maybe even more importantly at local level, because passing of decisions which maximize efforts aimed at introduction of circular economy may be expected only through networking, cooperation, and perception of circular policies from the standpoint of economy, citizens, and the public sector.

Engagement of citizens as users of goods and services and individual level of awareness is yet another important factor when it comes to transition of local business entities from linear to circular form of business-making. This factor may be an incentive, but also a barrier for circular economy, depending on the level of citizen awareness and their willingness to take an active part in implementation of local policies. On the other hand, passive behaviour, or, in some cases, citizen unwillingness to accept models of behaviour which are different than the existing ones may be a serious barrier to advancement of circular economy. To make the affirmative standpoint prevailing in citizens, LSGs in cooperation with other stakeholders in the area of economy and the civil society need to create and implement positive campaigns aimed at raising of citizens awareness on importance, advantages, and benefits of circular economy for the local community, and actively involve them in the process of strategic planning and positioning of the LSG as a circular community.

Incentives are yet another important factor for success of the circular economy concept. LSGs willing to support transition to circular economy and its development in the local economic setting need to ascribe equal importance to incentives to business entities and citizens. Incentives for businesses may be reflected in alleviation of administrative procedures and other types of financial and non-financial

¹⁸ <https://sustainabledevelopment.un.org/sdgs>

¹⁹ <http://www.r2piproject.eu/>

assistance based on strategic documents. For citizens, it is necessary to envisage reduction of utility bills or other types of benefits for rational behaviour in line with circular economy principles.

When it comes to barriers, beside the issue of the level of awareness in local actors, they may also be a consequence of deficiencies in the legal, i.e. regulatory framework. For instance, externalities are very frequently not included in cost-benefit analyses, which means that products which in the course of their life cycle incur greater damage to the environment are, as a rule, cheaper at the market, thus also more acceptable for an average, unaware customer. At local self-government level, this type of barrier may be recognized in public procurement procedures, where it frequently happens that the lowest price quoted is the main criterion for passing a decision on goods or services to be procured.

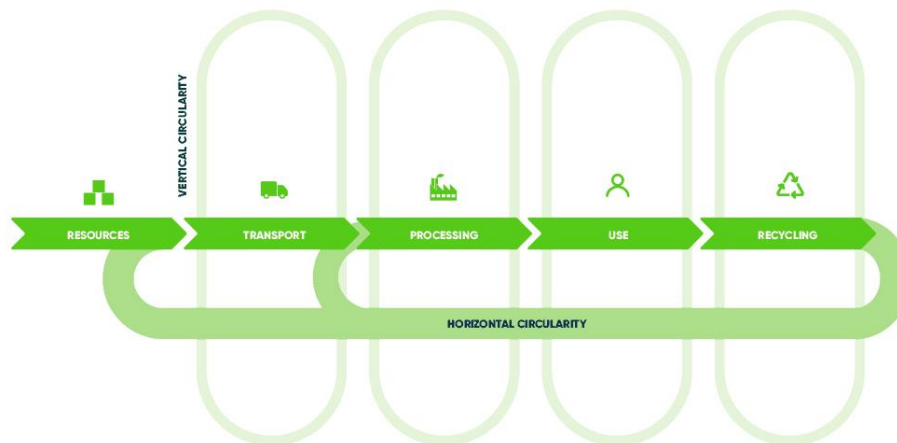
Poor and inconsequent local strategic and legislative documents which regulate waste management and lack of clear local or regional goals in this area are one of the key barriers for achievement of circular economy goals. Such a situation at local level invariably results in insufficiently clean fractions of recyclables, which significantly increases costs of the recycling process, while making secondary raw materials non-competitive at the market. Local infrastructure, such as recycling yards or composting plants, has an important role in the waste management system, so that its lack may present a serious barrier for orientation towards circular economy.

2.4. Circular value chains

Value chains are one of the key elements of the economic system and they present a path, physical and temporal, along which added value of materials, goods, and services is generated and kept. This is valid both for linear and circular economy with the key difference in the trajectory along which value is created. In the case of linear economy, the trajectory is a straight line which begins with exploitation and extraction of natural resources and ends in permanent disposal of products upon completion of their life cycle. In the case of circular economy, the chain, or, even better, value chains, are circular so that products or their components move in circles along them and remain in use much longer before their final disposal. Here it needs to be noted that each movement along the value chain creates added value.

Still, it would be wrong to reduce circular value chains only to products which may be recycled at the end of their life cycle. In reality, waste is generated along the whole production chain, while the circular approach requests that such generated waste is returned to the production process whenever it is possible. This is why in practice it is possible to differentiate two different forms of circularity, horizontal and vertical, as it is shown in Figure 1.

Circular Economy - Value Chain



Source: <https://ecochain.com/knowledge/circular-economy-guide/>

Figure 3. Circular economy chains: horizontal and vertical

3. Strategic, regulatory, and institutional frameworks for circular economy in Serbia

Unlike the European Union and some European countries which passed national strategies, Serbia does not have a strategic document which deals with the topic of circular economy. However, in the previous period a significant number of documents was passed introducing, more or less directly, principles of circular economy in the strategic-regulatory framework of the Republic of Serbia. Here it is important to mention that in the course of 2015, within its projects, GIZ launched initiatives for establishment of benefits for the economy and society as a while in the case of transition to this model. The analysis and definition of strategic and institutional frameworks for introduction of CE in Serbia which included definition of objectives, measures, and instruments for composition of the accompanying Action plan was conducted in the course of 2016 – 2017 and defined three sectors with the largest potential for implementation of CE concepts: (a) agriculture/HORECA and food waste; (b) packaging waste/plastic, and (c) electrical and electronic waste. For the purposes of the GIZ project was conducted by prof. dr. Marina Ilić from Belgrade and Henning Wilts from Wuppertal Institute in Germany, in consultations with relevant institutions and in cooperation with ministries in charge of environmental protection and economy, as well as with Chamber of Commerce and Industry of Serbia.

The analyzed laws and strategies provide LSGs a base and tools for support to development of circular economy, but also oblige them to be led by principles which may be easily connected to circular economy when planning development and passing public policies.

Towns and municipalities find the base for pursuing and supporting circular economy in the **Law on local self-government**²⁰ which defines competences, including those relating to passing and implementation of local economic development programmes, environmental protection, and care of development of crafts.

²⁰ Zakon o lokalnoj samoupravi (Sl. glasnik RS, br. 129/2007, 83/2014 - dr. zakon, 101/2016 - dr. zakon i 47/2018)

The Law on the planning system of the Republic of Serbia²¹ is a relatively new legal act which regulates public policy system management and mid-term planning at all levels of governance. The Law recognizes LSGs as participants in the planning system, which have the possibility and obligation to adopt planning documents to define public policies at their territories. This Law also defines principles which participants in the planning system need to be led by when creating and passing public policies. For promotion and broader acceptance and implementation of circular economy principles, the following is especially important at local level:

- **The principle of integrity and sustainable growth and development**, which implies that, on the occasion of development and implementation of planning documents, environmental protection goals, fight against climate changes, mitigation of effects of climate changes, and adaptation to climate changes, prevention of excessive use of natural resources, increasing of energy efficiency, and use of renewable sources of energy and reduction of GHG emissions, their effects on the society, especially on local communities, their development and specificities, vulnerable population categories, gender equality, and fight against poverty are taken into consideration; and
- **The principle of transparency and partnership**, which implies that public policies are established within transparent and consultative processes, i.e. a transparent process of consultations with all stakeholders and target groups, including associations and other civil society organizations, scientific, research, and other organizations is implemented that in the course of development and implementation of planning documents and effects analysis and evaluation of performance of public policies, facilitating achievement of individual legal and other interests of all stakeholders and target groups, with simultaneous protection of public interest.

Having in mind that the Law stipulates that LSGs need to adopt their local development plans as umbrella strategic documents not later than on 1 January 2021, it is necessary to work on promotion of circular economy so that it can find its place in these documents as one of the basic principles on which development at local level should be based. Beside this, it is also necessary to launch an initiative towards state bodies, first of all to the Republic Secretariat for public policies which is in charge of drafting of the Development Plan of the Republic of Serbia so that LSG could incorporate circular economy principles in their plans in line with the principle of consistency and compliance.

Having in mind that waste management is one of the most important, and in many cases also the most obvious sector for implementation of activities and activation of local economy in the direction of circular economy, it is necessary to provide an overview of strategic documents and laws in this area. The legal reform in Serbia which regulates waste management comprises the **Waste management strategy for the period 2010-2019**²², **Law on waste management**²³, **Law on packaging and packaging waste**²⁴, and accompanying by-laws.

The Waste management strategy is in the last year of its validity, while adoption of a new one for the following period of five years is being prepared by the Ministry of environmental protection. It is expected that the new Waste management plan for the period 2019-2024 will bring new principles, such as transition from the concept of regional sanitary landfills to regional centres for waste management, separate collection, separation, re-use, and recycling of waste, which are all elements of the circular approach in economy. However, it needs to be noted that the current Strategy also recognizes elements of circular economy, which are present in the key principles including the principle of hierarchy, i.e. sequence of priorities in waste management practices. According to the hierarchy, prevention and reduction of waste generation, as well as reduced use of resources are the steps of the highest priority,

²¹ Law on the planning system of the Republic of Serbia (Official Gazette of RS, No. 30/2018)

²² Waste management strategy for the period 2010-2019 (Official Gazette of RS, No. 29/2010)

²³ Law on waste management (Official Gazette of RS, No. 36/2009, 88/2010, 14/2016, and 95/2018 -oth. law)

²⁴ Law on packaging and packaging waste (Official Gazette of RS, No. 36/2009 i 95/2018 - oth. law)

followed by re-use, recycling, and recovery of waste (composting, incineration with utilization of energy, etc.); disposal of waste at landfills is the last option.

The Decree on establishing the Packaging waste reduction programme from 2015 to 2019²⁵, passed based on the Law on packaging and packaging waste provides the Packaging waste reduction plan and defines general and specific goals and objectives for recovery and recycling of packaging waste. General objectives by 2019 are: 60% for recovery and 55% for recycling. Specific objectives for different types of packaging are: paper/cardboard (60%), plastic (22.5%), glass (43%), metal (44%), and wood (15%). Having in mind the strategic determination for membership in the European Union and the negotiating process which is underway, within the framework of which Serbia will have to fully harmonize its legal framework with the European Union Acquis, it is to be expected that the new Waste management plan will define goals aiming for those provided within the EU Circular economy package.

The Law on waste management from 2010 stipulated the obligation on part of local self-government to compose local and regional waste management plans. In accordance with the Law, these plans are passed for the period of 10 years, while they are reconsidered once every five years, revised as necessary, and passed for the following 10 years. In practice this means that all, or almost all local and regional waste management plans are to expire in 2020. Together with the expectations attached to the National waste management plan, this is the right moment for LSGs to open dialogue and initiate exchange of ideas on the importance of and benefits resulting from orientation towards circular economy, so that its principles and goals could find their place in the plans which local towns and municipalities will be passing in the following period. If this happens, it is realistic to expect significant progress in this area. Otherwise, greater impact of circular approach in local economic activities will depend on national trends, the market, cost-effectiveness for companies, and awareness of actors at the local economic scene. It needs to be noted that, within the GIZ Project activities, local waste management plans have been composed for 17 partner municipalities in three waste management regions (Novi Sad, Kruševac, and Lapovo) as well as action plans for introduction of primary separation, and models for collection and treatment of the biodegradable waste stream, all in line with CE principles.

The National environmental protection programme²⁶ was passed in 2010 for the period of 10 years of validity. The Programme presents the current condition of the environment into detail, as well as inter-sector causes of degradation of the environment, impact of environmental degradation on human health, and impact of the economy sector on the environment. Having in mind that this strategic document is also in the last year of its validity, it is to be expected that composition of a new one will start soon; circular economy principles need to be more explicitly incorporated in the new Programme, especially the parts relating to interdependence of economic activities and condition of the environment.

The Strategy of sustainable use of natural resources and assets, adopted in 2012²⁷, defines the framework for sustainable use and protection of natural resources with the aim to support socio-economic development by 2020 and further. The main goal of the Strategy is to ensure economic development by more efficient use of natural resources, together with simultaneous reduction of negative impact on the environment. The 25 principles on which the Strategy is based also include the principle of preservation of natural values and the principle of reconstruction and remediation which may be directly related to circular economy principles.

²⁵ Decree on establishment of the Packaging waste reduction plan for the period from 2015 to 2019 (Official Gazette of RS, No. 144/2014)

²⁶ Decision on establishment of the National environmental protection programme (Official Gazette of RS, No. 12/2010)

²⁷ Strategy of sustainable use of natural resources and assets (Official Gazette of RS, No. 33/2012)

When it comes to economic activities, business entities, and introduction of circular economy principles, it needs to be noted that in 2009 the Government adopted the **Strategy for introduction of cleaner production in the Republic of Serbia**²⁸. This Strategy, which does not contain any time constraints, has all characteristics of a document which introduces circular economy principles into a strategic framework. The Strategy defines cleaner production as a preventive approach in environmental protection, primarily aimed at increasing resource efficiency and minimization of environmental pollution and generation of waste at source. According to this document, the aim of cleaner production is elimination of environmental pollution, i.e. full elimination of pollution wherever it is possible rather than mere treatment of waste streams. By introduction of cleaner production, available materials and energy are rationally used and waste generation is prevented. The Strategy emphasizes that cleaner production has two roles, environmental protection role, and support to modern production development. The principles it introduces are the principle of integration, i.e. life cycle analysis, principle of prevention and precaution, principle of cost-effectiveness, and principle of energy efficiency and waste minimization.

SME, entrepreneurship, and competitiveness support strategy for the period from 2015 to 2020²⁹ recognizes strengthening of innovativeness in small and medium-sized enterprises as one of the dimensions, and within it, it also recognizes a priority measure relating to support to highly innovative small and medium-sized enterprises, eco-innovation, energy efficiency, and efficient use of resources. The Strategy envisages that local self-government bodies may plan and finance from own sources measures for implementation of strategic priorities laid down in this document.

Serbian industrial development strategy and policy from 2011 to 2020³⁰ is a development document which defines basic development priorities of Serbian industry and manners to achieve them. This strategic document, even though nearing its expiration, recognizes concepts such as clean production, energy efficiency, and environmental protection, and states them as a part of measures and activities for implementation of industrial policy. Among others, the Strategy gives the possibility to LSGs to support local economic development and business entities at their territory through direct or indirect incentives from the budget. In these terms, if they have recognized circular economy as one of priority development programmes in their strategic documents, LSGs may also determine support measures, direct (allocations from the budget), i.e. indirect (foregoing a part of original revenue), as incentives for economic entities in circular economy. In these terms, it is also necessary to mention the **Law on control of state assistance**³¹ which defines state assistance as any real or potential public expenditure or reduced realization of public revenue, by which the beneficiary of state assistance gains a more favourable market position than its competitors, which distorts or threatens to distort market competition. This law also defines that assistance allocated for promotion of development within certain economic activities or certain economic areas is a type of permitted state assistance if this does not distort or threaten to distort market competition to a serious extent. This provision clearly points that circular economy, as an economic activity of local importance, may potentially qualify as a beneficiary of state assistance, under transparent and controlled conditions with the aim of market protection and not with the aim of market distortion.

The Law on investments³² recognizes LSGs as entities which extend assistance to investments and define measures to simulate competitiveness of LSGs. Incentive measures comprise: determination of the local body to support investments; strengthening of the analytical base for more precise and data-based creation of development policies, instruments, and measures in the area of local economic development;

²⁸ Serbian cleaner production import strategy (Official Gazette of RS, No. 17/2009)

²⁹ MSP, entrepreneurship, and competitiveness development strategy for the period from 2015 to 2020 (Official Gazette of RS, No. 35/2015)

³⁰ Serbian industrial strategy and policy from 2011 to 2020 (Official Gazette of RS, No. 55/2011)

³¹ Law on control of state assistance (Official Gazette of RS, No. 51/2009)

³² Law on investments (Official Gazette of RS, No. 89/2015 and 95/2018)

establishment of transparent mechanisms for permanent support and cooperation with the economy; simplifying of local procedures for implementation of investments; balancing of the local labour market; development of utility and local economic infrastructure; use of IT and communication technologies with the aim to enable more efficient communication; and prescribing of local alleviations and incentives based on local strategic documents. This Law provides a good base for support to circular economy to LSGs which strategically opt for development of this approach at their territories.

Besides those given, there are other laws and strategies which, more or less directly, address elements and principles of circular economy, thus inducing LSGs to behave rationally and develop a setting in which resources will be efficiently used and pressures to the environment reduced, with simultaneous development of local economy. Such acts include the Law on environmental protection³³, Law on efficient use of energy³⁴, Law on regional development³⁵, Serbian Energy development strategy by 2025 with the projection by 2030³⁶, Serbian agriculture and rural development strategy for the period 2014-2024³⁷ and other documents.

Same as in the case of the regulatory framework, the **institutional framework** for circular economy in Serbia is still in the stage of development. The Ministry of environmental protection took the leading role at state level; having recognized the importance of circular economy and socially responsible behaviour in business operations in terms of protection and promotion of the environment, it established the Group for circular and green economy within the Sector for strategic planning and projects. The Ministry of economy, which is in charge of economy and businessmen, should also occupy an important position within the legal framework as the institution in charge of strategic orientation of the economy in circular direction. At institutional level, an important position should also be ascribed to Chamber of Commerce and Industry of Serbia (CCIS), which has, through its Centre for circular economy, been actively promoting circular economy principles at a broader social level, but which also assists Serbian companies to embark on transition towards circular economy. With support of *Climate KIC* and in cooperation with an integrated expert who, thanks to GIZ, is a part of the team of the Centre for circular economy, the Chamber of commerce recently initiated the Academy of circular economy so as to enable knowledge transfer, especially towards the sector of small and medium-sized enterprises, so that our economy could get prepared for energy and environmental transition for the purpose of strengthening of competitiveness at regional and global markets. At the same time, as a part of the GIZ Project activities in cooperation with the Chamber of commerce, Guidelines for implementation of value chains in accordance with circular economy principles have been prepared for two sectors – the HORECA sector, and the plastic packaging sector. Likewise, action plans for use of secondary raw materials in production processes will be prepared for 20 selected companies.

Within its Alliance for food and agriculture, but through project activities as well, National alliance for local economic development (NALED) treats the issue of food waste, i.e. the topic of food waste management. When it comes to circular economy and LSGs, Standing Conference of Towns and Municipalities (SCTM) has its place in awareness-raising on the topic at local level. As the national association of all LSGs, it placed this topic on the agenda of its bodies, first of all the Environmental protection Committee and the Committee for local economic development, also including the issue of promotion of circular economy among its strategic goals. Finally, it needs to be noted that in the beginning of 2019 the Ministry of environmental protection established a Separate working group for

³³ Law on environmental protection (Official Gazette of RS, No. 135/2004, 36/2009, 36/2009 - oth. law, 72/2009 - oth. Law, 43/2011 – CC Decision, 14/2016, 76/2018, 95/2018 - oth. Law and 95/2018 - oth. law)

³⁴ Law on efficient use of energy (Official Gazette of RS, No. 25/2013)

³⁵ Law on regional development (Official Gazette of RS, No. 51/2009, 30/2010 and 89/2015 - oth. law)

³⁶ Serbian energy development strategy by 2025 with projection by 2030 (Official Gazette of RS, No. 101/2015)

³⁷ Serbian agriculture and rural development strategy for the period 2014-2024 (Official Gazette of RS, No. 85/2014)

circular economy, as an inter-sector body, with the mandate to propose the best manners and support introduction of circular economy in the strategic and legislative frameworks of the Republic of Serbia. Besides Ministry of environmental protection, the Separate working group also comprises the Ministry of economy, Ministry of agriculture, forestry, and water management, Ministry of mining and energy, Ministry of education, science, and technological development, Ministry of construction, transport, and infrastructure, Ministry for European integrations, Environmental agency, Institute for standardization, PKS, NALED, SKGO, GIZ, OEBS, UNDP, and MIKSER organization as the representative of the civil sector.

4. Circular economy in local context

Transition to circular economy calls for new, circular business models, as well as corresponding chains of supply and demand for materials, products, and services which entities in circular economy may demand or supply. Apart from this, financial instruments are also needed for monitoring of business entities which want to aim their business policies towards more circular forms of business operations. Finally, there also needs to exist a certain level of awareness on basic principles of the new economic model, in business entities, consumers, and decision-makers who have impact on or create business setting at various levels, so that circular economy could have a better hold at micro, mezzo, and macro level alike.

Even though this might not be obvious at a glance, LSGs within their competences have a significant number of mechanisms to promote and support development of circular economy at local level. Local authorities may establish an appropriate regulatory framework, but they also have the possibility of stimulating, promoting, and working on upgrading of capacities of local actors in order to facilitate easier and faster transition towards circular economy. Their engagement may range from incorporation of circular economy principles into local policies from public procurements which state circularity of materials, equipment of services to be procured as a criterion to support to local economic development based on circular economy principles.

4.1. Vision of circular local self-government

LSGs which, on the one hand, incorporate circular economy principles in their functions while creating setting favourable for development of business entities and actors participating in circular supply chains on the other, may be deemed circular.

Circular cities should have the goal of establishing a system in which waste generation is reduced to a minimum or fully eliminated, where goods keep their value over a long period of time, products and materials remain in circulation as long as possible, while the environment and the urban setting preserve all their characteristics and values, so as to be available to future generations as well.

The vision of a circular town implies prosperity of the economy and citizens, resilience against climate changes negative economic trends, better living conditions for citizens, and promotion of the environment, but implementation of modern technologies, digitalization, and concepts such as open data and *smart city* as instruments to achieve this vision as well. Such towns create new employment possibilities, while, having a rational attitude to natural values and using renewable energy sources, facilitating separation of added economic value at local and national level from consumption or exploitation of limited resources.

Circular LSGs are usually characterized by some of the following elements³⁸:

- Construction conceived in a modular and flexible manner using materials which contribute to improvement of the quality of citizen life the application of which minimized use of natural resources. Construction is performed using efficient construction techniques, while constructed business and residential facilities are characterized by a high space utilization rate thanks to design which enables joint, flexible, or modular use of such space. Such constructed structures consume water and other resources in closed cycles, may be maintained and reconstructed, fully or partially, while their use should not consume but generate energy;
- Independent energy system or systems, based on renewable sources, resistant to market shocks, changes, and fluctuations, with equal distribution and coverage. Such energy systems enable efficient use of energy, which contributed to energy cost reduction and has a positive impact on the environment and climate.
- The urban mobility system which is available, accessible, and efficient, and which has a modular structure which includes various forms of public transport. Means of transport within such a system are predominantly electrical or fuelled from some renewable sources, while transport is based on joint use of vehicles and is largely automated.
- Urban bio-economy based on maximum utilization of biological potentials of a local community, including all sectors and systems relying on biological resources such as biomass and organic waste.
- Production systems which stimulate creation of local circular value chains, which implies more local production and exchange within the local economy. Such circular production systems facilitate keeping of local added economic value within the local community or region.

To make the vision of circular local self-government a reality, it is necessary that political decision-makers at local level recognize the importance and advantages of circular economy in relation to the environment and economic prosperity of the local community and citizens, and support orientation towards the circular business model as an important factor of local economic development

4.2. Local economic development and circular economy

One of important functions of LSGs is also performance of activities aimed at stimulation of local economic development. According to law³⁹, municipalities may compose and adopt local economic development programmes, and take activities to keep existing and attract new investments and promote general conditions of business-making at their territories.

Local economic development may be deemed a strategic planning process which includes cooperation between local authorities, private sector, and citizens, aimed at stimulating investments which will facilitate high and long-term economic development at local level⁴⁰. In broader terms, local economic development is defined as growth of capacity of local economy for generation of wealth and promotion of the quality of citizen life at local level, through increased employment, realistic salaries, value of personal belongings, and scope and quality of services.

³⁸ Cities in the Circular Economy: An Initial Exploration, Ellen MacArthur Foundation, 2017

³⁹ Law on local self-government (Official Gazette of RS, No. 129/2007, 83/2014 - oth. law, 101/2016 - oth. law, and 47/2018)

⁴⁰ M. Žikić, D. Mak, Analiza efekata različitih institucionalnih oblika za sprovođenje nadležnosti u oblasti lokalnog ekonomskog razvoja, SKGO 2010.

Local economic development policies are aimed at creation of better conditions for development of the economy, promotion of efficient local services to businesses, elimination of barriers for business operations at local level, promotion of cooperation between local administration and businesses, development of support instruments for companies and entrepreneurs, as well as branding and better positioning of LSGs as centres of economic development.

Thus perceived function of local economic development may be deemed the starting point and an important instrument for introduction of circular approach in main economic trends at local level.

Having in mind that circular form of business-making is closely connected to the local economic situation and trends, local economic development strategies should promote innovative approaches, innovative entrepreneurship, and stronger connections among local actors with the aim to create local logistic circular supply chains, i.e. to create supply and demand for materials, components, and products generated in production cycles of circular economy. To this end, LSGs which opt for strategic support to creation of conditions for development of circular economy have on their disposal various regulatory, stimulating, and promotional tools.

4.3. Role of local self-government and tools for support of development of circular economy

One of leading world organizations dedicated to research, advocacy, promotion, and popularization of circular economy, Ellen McArthur Foundation, provides an overview of key functions of local self-government and tools⁴¹ which LSGs have at their disposal when they want to create conditions for development of circular economy at their territories. The recognized tools may be divided in five functional groups depending on the role of local self-government, i.e. type of intervention envisaged. LSGs may use certain or all tools depending on their strategic orientation, local situation, vision, and the level of autonomy, i.e. operations performed within their competence. This is about the following groups of interventions which LSGs may implement:

- **Interventions in the area of creation of a circular economy vision at local level.** This group of interventions comprises interventions which relate to development of a separate strategy or roadmap for circular economy at local level, or incorporation of principles and elements of circular economy into other local strategic documents and plans, such as local economic development strategy, waste management plan, employment plan, sustainable urban mobility plan, energy efficiency programme, sustainable development programme, environmental protection programme, primary waste separation plan, and other documents. Strategic documents which relate to circular economy are unfailingly composed through a consultative process which needs to include actors from different groups, including different prances of local economy, citizens, and professional public. Strategic documents establish guidelines and propose steps and measures which will lead to transition to circular economy. They also need to comprise other interventions, such as campaigns, town planning standards, or criteria for public procurement, but also short-term, mid-term, and long-term goals from different area of activity at local level such as waste management, urban mobility, energy efficiency, renewable energy sources, and other areas.
- **Interventions in the area of regulatory network at local level.** Passing of regulations is one of the basic functions of LSGs. Even though the local regulatory framework considerably depends on policies

⁴¹ City Governments and their Role in Enabling a Circular Economy Transition - An Overview of Urban Policy Levers, Ellen Macarthur Foundation, March 2019

and legal solutions passed at higher levels of authority, it may play a significant role in creation of economic setting at local level. This means that, on the one hand, active policies transformed into an affirmative regulatory framework of local self-government may help overcome barriers for circular economy such as administrative or cultural barriers, while on the other they have the possibility of increasing demand for resources and products launched at the market by circular economy entities through public procurement policy and replacement of technologies used in the public sector.

- **Interventions in the area of urban management.** Within the scope of their authorities, LSGs have instruments with which they have a crucial impact on physical development of towns. Spatial and town planning, administration of public property and public procurements of goods and services are instruments of LSGs used to create favourable setting for development of circular economy. Each of these instruments has an impact on the choice, design, use, and circulation of materials and products in one local community. Besides, these elements of urban development are directly inter-related and have mutual impact, thus public procurements, town planning, and equipping and management of public spaces may be a strong signal for citizens and entities in circular economy that the local policy is led by and dedicated to circular economy principles.
- **Interventions in the area of economic incentives for circular economy.** LSGs may use financial incentives and allocate funds from their budgets to support agriculture and entrepreneurship, especially to companies in the area of bio-economy or local start-up companies which are willing to develop modern technologies, materials, and services in the area of circular economy. Economic incentives may include fiscal and other forms of financial alleviations for entrepreneurs and companies which start business operations in some of the areas in the domain of circular economy.
- **Interventions which include raising of awareness and capacities, and promotion of circular economy at local level.** LSGs are not only in the position but also have social responsibility to conduct activities affirming and promoting policies, behaviour, and actions which have positive impact on the environment and citizen well-being. On the other hand, in view of the position of local self-government as the level of authority closest to citizens, LSGs have the possibility of connecting actors from different social and economic spheres through their engagement and initiate actions aimed at transition towards circular economy. Such activities may include various forms of promotional campaigns affirming circular economy principles aimed at businesses, but educational institutions as well, public debates, and inclusion of citizens in processes of development of strategic documents such as primary separation plans or waste management plans. Other activities of the kind may include awareness-rising in local business entities or sponsoring of training for entrepreneurs on the topic of circular economy. All these activities need to be laid down in strategic documents and planned in local budgets. Beside this, municipalities may cooperate with representatives of businesses in order to overcome and eliminate barriers for transition to circular economy at local level.

Depending on local circumstances in terms of the level of development, urbanization, local economy structure, organization of the waste management system, level of awareness or knowledge on circular economy, as well as existence of educational institutions the curricula of which comprise subjects closely connected to principles of circularity, a combination of different types of interventions is more or less welcome and likely, and may have better or poorer results. For instance, due to the limited quality of local budgets, the intervention relating to extension of incentives from the local budget to companies in transition to the circular form of production may not be possible, but it might be feasible to stimulate business operations of such companies by letting them land or business space under favourable conditions. It frequently happens that companies which initiate business operations in some innovative

areas, circular economy falling into this group, deem it more important to be alleviated of some administrative burdens and have the possibility of access to the market rather than to receive financial assistance. This is why it is very important that LSGs in the process of composition of strategic documents firstly do a detailed recording of the status quo situation and determine the baseline prior to deciding on the type of tools to be used for promotion of circular economy.

4.4. Benefits of transition to circular economy for local communities

Local self-government is one of the key actors in transitions towards circular economy. However, in order to realize multiple roles of LSGs (strategic, regulatory, initiating, administrative, and promotional), political decision-makers need to recognize benefits which transition to circular economy brings to the local community, economy, and citizens. Benefits from local economy at local level range from purely economic through environmental to broader social benefits for the local community.

Economic benefits include larger investments, increase of competitiveness of the local economy, increase in flexibility and resilience of the economy against economic fluctuations and other types of market disturbances such as disturbances in prices of raw materials and input components. Transition to circular economy at local level may bring durable benefits to the economy and business entities through innovation, promotion of image and customer loyalty, as well as increase in productivity and decrease of costs of operation. For LSGs, economic benefits are reflected in increase of budget revenue from original revenue as a result of increased value of real estate and income from property tax and increased employment and revenue from the part of income taxes.

Adoption of principles and practices of circular economy does not only bring benefits to the economy, but also has numerous positive effects on the condition of environment at local level. Due to decreased use of raw materials, more rational consumption of energy, use of green energy, and decreased generation of waste to be landfilled, local business entities decrease the impact of their business-making on the environment. Use of renewable sources and energy efficiency contribute to reduction of GHGs and air pollution, while decreased waste generation also reduces the pressure on soil and surface and ground waters.

One of the theses of circular economy is sustainable product design, i.e. focusing on product quality, durability, and possibility of servicing and repair. This means that need for specific skills and know-how will increase in local setting, which could lead to revitalization of small workshops and services for repair, but also replacement and exchange of products and services. Keeping valuable resources in circulations supports development of the market of secondary products and materials, primarily at local level, which may create the need to new jobs in areas with high unemployment. Besides, this is a manner to satisfy consumer demand for better and longer-lasting products, which releases the pressure on household budgets.

4.5. Mapping and analysis of circular economy actors at local level

The success of transition towards circular economy at local level largely depends on local actors, their interest, capacities, and possibility of exerting influence on the process. At local level it is possible to separate several basic groups of actors, each of which has its specificities, which are in no way uniform in terms of elements characterizing them. Mapping and analysis of actors is one of the most important steps on the occasion of development of the strategy for transition to circular economy at local level, having in

mind that this process, which also considerably depends on policies, trends, and activities at other levels, also needs to include the most important actors at these levels.

When it comes to transition to the circular model of business operations, all actors may be placed in several categories. The group of creators of national policies comprises institutions of central authorities, i.e. the government and competent ministries, first of all those which have competences in the area of economy and environmental protection, but other ministries competent for finances, agriculture, or energy as well. In the domain of economy and industry, public companies occupy their position in the hierarchy of actors at national level, same as the Chamber of Commerce, which gathers businesses and actively pursues circular economy issues. Likewise, an important place is given to civil society organizations active in the area of environmental and climate protection, as well as associations pursuing interests of consumers. This group of actors may certainly include Standing Conference of Towns and Municipalities which represents interests, informs, and extends various forms of services to its members.

When mapping actors, one should also take into account the super-national level, i.e. international and bilateral development and donor organizations, which are actively involved in implementation of projects which, directly or indirectly, have to do with creation of conditions and support to introduction of circular economy at national and local level. Beside the EU Delegation, this group also includes German Organization for international cooperation (GIZ), United Nations development Programme (UNDP), Organization for security and cooperation in Europe (OSCE), international financial organizations such as European Bank for reconstruction and development (EBRD), German development bank (KfW), Council of Europe Development Bank (CEB), European Investment bank (EIB), World Bank (WB), as well as other bilateral and international organizations.

At regional level, Provincial Secretariat which creates policies and setting in which circular economy may progress is an important actor, same as regional chambers of commerce, administrative districts, regional development agencies, and regional waste management companies.

Actors at local level may be divided into different groups, equally important for the process. These are: political decision-makers, local administration, local business entities, local media, professional and educational institutions, green councils, civil society organizations, and citizens. Local branches of commercial banks may also have a certain role, thus they need to be recognized as possible actors as well.

There are numerous tools for mapping and analysis of actors, and they may be easily found through a search of the Internet. To illustrate this procedure, we used models taken over from the publication “Cooperation Management for Practitioners - Managing Social Changes with Capacity Works⁴²”.

⁴² Cooperation Management for Practitioners - Managing Social Changes with Capacity Works, GIZ GmbH, 2015

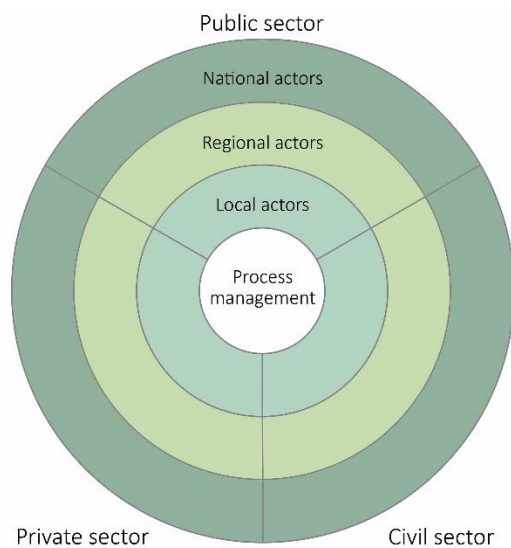
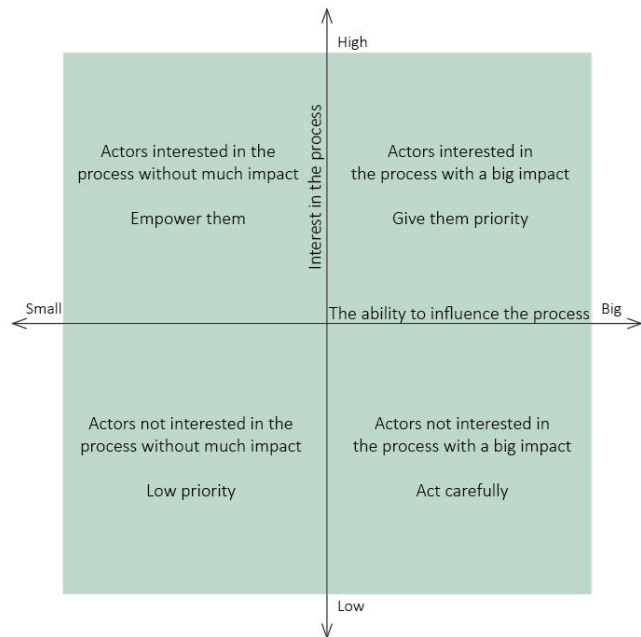


Figure 4. Map of actors



Picture 5. Analysis of actors' interests and influences

The diagram from Figure 4 may assist in recognizing the actors, and is used for their grouping in one of the three basic sectors, public, private, or civil, and for their disposition at their level of activity. In the centre of the diagram there needs to be the actor which initiates and manages the process. When it comes to local level, this, as a rule, is the executive body of the LSG (the mayor or council) or a body, i.e. working group, appointed by such a body. Other actors are placed in the diagram depending on the sector and level they belong to, while a separate mark is assigned to their function in the process. Based on this function, actors may be those that create policies, those that implement policies, those the policy relates to, and other actors. It is important to note that, when mapping, LSGs should not be perceived as single actors, as they comprise different bodies which may have different roles and attitudes towards the process. Thus, for instance, the department for local economic development may have a higher level of awareness on the importance of the process, while the public procurement unit need not necessarily be led by circular economy principles in its procedures. Also, the due to its specific political role in creation of local policies and local setting, the assembly of the LSG should be recognized as a separate actor. Differentiation of actors in other sectors should also be done according to the same principle, thus business entities from different branches such as agriculture, energy, production, or trade should be regarded separately, while the civil sector may comprise different groups, from those pursuing interests of consumers, via environmental protection organization, to informal collectors. Following identification of actors, it is necessary to perform analysis of their interest and possibility to influence the process. This is presented on the diagram in Figure 5.

For the process of transition from the linear to the circular form of business operations, it is necessary to be well-familiar with the local situation, so as to, based on positions and actions, it is possible to determine the position of the actors on the diagram, thus an adequate approach a time and actions aimed towards them as well. Actors which are interested and which have large impact on the process should be given priority and support, as well as alleviations and incentives if they come from the area of economy. Actors which are interested, but which do not have significant impact on the process, such as common citizens, different groups from the civil sector or associations of craftsmen and cooperatives, should be empowered through inclusion in dialogue and the process of planning and decision-making. Actors which may potentially have significant influence and which needs not necessarily be interested in

the process, as might be the case with public utility companies, media, certain business entities, parts of local administration need to be included in the group of interested actors through active promotion of circular economy, lobbying, or in other manners. Actors which are neither interested nor influential should not be assigned a high priority, but should be kept informed about the process of transition towards circular economy. In the course of this analysis, particular attention needs to be given to relations among actors, especially to their existing or possible circular connectedness, as well as the manners in which this connectedness may create the highest possible value in circular economy streams.

5. Circular economy practice at local level

In literature it is possible to find numerous examples of LSGs which implement activities with the aim to support transition of the local economy from the traditional, linear, to the new, circular form of business operations. Some of the towns which embarked on the way to circular economy did this by passing separate strategies, others did it in cooperation with businesses, while some do it implementing circular projects of larger or greater scope.

The Internet page “European circular economy stakeholder platform”⁴³ provides an overview of strategic documents passed by states, regions, but LSGs too. Besides several national and regional documents, it is also possible to download some local strategic plans such as the Circular roadmap of London, Roadmap towards circular economy in the construction sector in Brussels, Circular economy roadmap of the French town of Rube, *Ekstramadur Strategy* 2030, as well as the Strategy of transition towards circular economy of the municipality of Maribor and Circular economy strategy of the municipality of Trento.

There are numerous examples of towns in Europe and world-wide which implement projects in the area of circular economy, either independently or in cooperation with scientific and educational institutions or the private sector. A good example of this type of cooperation is the *Circular City Project* within *Climate-KIC*, innovative community of the European Institute for innovation and technology (EIT). This project is aimed at promotion and initiation of exchange of innovation in the area of circular economy among towns, regions, and scientific networks at global level. Beside concrete innovative solutions for development of circular economy, the project also resulted in the so-called circular platforms in European towns and world-wide where it possible to test different circular concepts. Examples of towns which have initiated and which implement different circular initiatives and projects are collected in the publication *Municipality led circular economy case studies*⁴⁴.

When it comes to LSGs in Serbia, so far there has not been a strategic document to deal with transition to circular economy so far; however, there are towns and municipalities which launched initiatives which may be related to circular economy principles in the area of waste management, energy efficiency, and use of renewable energy sources, either independently or in cooperation with different international project.

5.1. Some examples of good practices in towns of the European Union

Even though circular economy did not gain the status of an official policy in the European Union before 2015, its principles and elements have been in implementation in numerous European towns for a considerable time. Because of this, as well as the fact that the position of local self-government is unique

⁴³ <https://circulareconomy.europa.eu/platform/en>

⁴⁴ <https://www.climate-kic.org/wp-content/uploads/sites/15/2018/12/Municipality-led-circular-economy-case-studies-compressed-ilovepdf-compressed.pdf>

and important for transition to circular economy, the European Union assigns great importance and provides support to research, documenting, and promotion of towns and municipalities which make the first steps in this direction. A large number of publications composed within *Horizon 2020*, *Climate-KIC*, *Interreg*, and other European programmes are available, providing an overview of different local practices related to circular economy.

The fact that acceptance and success of circular economy depend of capability of its actors to adapt to local and regional conditions makes research and promotion of good local practices even more important. The text below contains examples of but a few interesting practices which could be useful on the occasion of deliberation of possibilities of initiating circular economy in the context of local self-government in Serbia.

When it comes to prevention of waste generation, there is an interesting example of Association of towns and regions for sustainable resource management⁴⁵ (ARC+), which is a network established with the aim to promote sustainable resource management and accelerate transition towards circular economy at territories of its members and broader. This association, the mission of which is to contribute to prevention of waste generation, as well as environmentally friendly and rational waste management, has 54 LSGs from the European Union as members. In the period 2010-2012, using the funds of the *INTERREG IVC* programme, the association implemented the *Pre-waste* project within which it collected 20 examples of good practice of European towns in the area of prevention of waste generation

The collected examples of good practices include, for instance, the Vienna-based service and repair centre, promotion of de-concentrated composting in Brussels, or the **Alelikan** re-use park in the Swedish city of Gothenburg. The last project mentioned was initiated in 2007 and is a place where citizens of Gothenburg may take their products for recycling, leave material for multiple uses, or purchase commodity items donated by others, which are frequently repaired or improved. The park is owned by the city, and it also contains a range of specialized shops which repair or sell recycled products, which pay the city for letting them public premises. All visitors of the park are encouraged to donate or sell objects which may be re-used, while the rest of waste is sorted into different fractions for material recycling or energy production. The initiative resulted in re-use of 5.5% materials which would otherwise be disposed of.

There is another interesting example from Brussels which relates to food waste, or, more precisely management of the whole cycle starting from production, through logistics of placement, use, all the way to food waste management. The project *Good Food Brussels* is a platform launched at the level of Brussels region with the aim to increase local production of food and reduce quantities of food waste generated in the town. The focus of the project is on the overall foodstuffs supply chain, from production to disposal, and is supported by a number of governmental institutions and social groups. One of the main goals of the project is increasing of awareness on the existing activities and initiatives in this area and their connecting using an on-line platform, which thus increases visibility. Beside this, working with individual consumers, but restaurants, supermarkets, and food distributors as well, the project stimulates activities aimed at local food production and minimization of food waste. Within the project, a study was composed identifying the direction of activities in order to achieve the goal of at least 30% locally produced foodstuffs in Brussels region by 2035.

As an example of circular initiatives at regional level, it is possible to use the case of the French region of Nouvelle-Aquitaine which opted to act as a national pilot project in implementation of circular economy. Due to end of exploitation of natural gas, an industrial symbiosis system was established connecting new

⁴⁵ <http://www.acrplus.org/en/>

industrial plants, including chemical, bio-energy, and carbon industries. In December 2014, the region adopted the roadmap towards circular economy which describes 20 activities which need to be undertaken so as to achieve transition towards circular economy. Among other activities, the roadmap also proposes the following: detailed collection of data on waste and monitoring of material flows at regional level; mobilization of local and regional actors interested in cooperation within circular chains; promotion of use of materials which may be recycled and sorted through green public procurements; development of operating tools intended for companies which are to be included in circular chains; as well as other activities. Another important role which the region took is facilitation of cooperation among stakeholders. In April 2016, regional platform entitled *RECITA*⁴⁶, dedicated to circular economy at the level of Nouvelle-Aquitaine was also initiated.

5.2. Maribor, Slovenia

Maribor is the only town in the region of South-East Europe which has passed a strategic document dedicated solely to transition towards circular economy at local level, and which has redirected its activities, operations of companies at its territory, and its citizens towards the circular economy model, which is why the example of this Slovenian town is of utmost interest and importance when discussing the issue of support of local authorities for the process of transition towards the circular manner of thinking and acting.

Maribor presented its strategy in July 2018, shortly after the composition of the Slovenian Roadmap towards circular economy, national strategic document prepared under the auspices of the Government and Slovenian Ministry for environmental protection and spatial planning. However, it needs to be noted that Maribor, facing economic issues and different social challenges at its territory, already started connecting its development to circular economy principles back in 2014. This implied urban development planning which includes integrated management of all resources created in the region with implementation of circular economy principles, efficient and sustainable use of energy and water, as well as use of processed waste as a new resource. At the same time, such conceived urban development includes basic principles of cooperative economy, inclusion of the civil society in planning and decision making, and development of sustainable urban mobility. Finally, through numerous contacts and interaction with citizens, professional public, representatives of central authorities, local economy, and the European Union, the town created *Wcycle*⁴⁷, its innovative framework project for transition towards circular economy.

In the course of 2017, with support of the Town council, and with the aim to implement the *Wcycle* project, five companies fully or partly owned by the town established the *Wcycle* Institute Maribor (IWM) which has become the umbrella organization responsible for implementation of projects in the area of circular economy, whether they originate from company founders, citizens, or private entities. In its first year of existence, IWM successfully implemented the concept of circular economy in Maribor, for which it won national and international awards. IWM also participated as a partner in preparation of Slovenian Roadmap towards circular economy, which was presented to the public in May 2018.

The basic idea of the Strategy of transition towards circular economy of Maribor, as well as the *Wcycle* project, is promotion of an innovative circular approach as the leading idea for management of all resources available at the territory of the town and its broader area. With its Circular strategy, Maribor wishes to contribute to achievement of sustainable development goals; when it comes to general goals of the strategy and *Wcycle* project, it emphasizes the following:

⁴⁶ <https://www.recita.org/>

⁴⁷ <https://wcycle.com/>

- Reduction of burden onto the environment;
- Reduction of use of natural resources;
- Increased use of renewable energy sources and water;
- Quality land use;
- Development of cooperative economy;
- Creation of new, mostly green jobs;
- Creation of added value and economic development;
- Use of new technologies, research and development.

The approach which Maribor opted for and which is expressed in the Strategy does not include only circular economy principles in the area of municipal waste management, but also implementation of this concept in construction and industry, energy, municipal water management, land use, and mobility. The Strategy comprises seven strategic areas:

- Municipal waste treatment and accompanying services
- Use of treated construction and demolition waste and earthworks in construction
- Management of thermal energy surplus and renewable energy sources
- Sustainable mobility – public transport and common services
- Re-use of recycled water and alternative water resources
- Sustainable land management and restoration of degraded areas
- Networking and cooperative economy

The innovative transition from the linear to the circular form of economy in Maribor, based on an efficient economic resource management model as implied by the Strategy, presents an additional obligation of mutual cooperation and networking for all actors in the town, not only between public companies and town administration, but at other levels as well. The Strategy recognizes that only close cooperation among public companies, citizens, industry, and local self-government may result in a successful system which optimizes use of resources and generates positive results in economic, environmental, and social terms. The town of Maribor and IWM implement several successful projects in the area of circular economy, such as projects *GREENCYCLE*, *URBAN SOIL 4 FOOD*, and *CINDERELA*.

Key goals of the *GREENCYCLE* project, the implementation of which, besides the town of Maribor, also includes towns and municipalities from Italy, Germany, and Austria, as well as several environmental organizations, comprise development of circular strategies for LSGs participating in the project, as well as development of tools for support to circular economy and posting of a digital trans-national platform for exchange of information, experiences, tools, and knowledge on circular economy.

The main goal of the project *URBAN SOIL 4 FOOD* is use of municipal waste as a resource for preparation of soil for cultivation of agricultural crops within the broader town area and increase in accessibility of locally produced foodstuffs, as well as reduction of carbon print from waste management. The project is aimed at using waste generated in the town, especially earth obtained through construction work, as input material for production of recycled, standardized, and certified soil which meets purposes of towns, especially with the aim to improve soil quality and increase food production.

The *CINDERELA* project, financed from funds from the EU research and innovation programme *Horizon 2020* is aimed at developing a new circular economy business model for use of secondary raw materials in urban surroundings by connecting different industries, the construction sector and municipal services, decision-makers, and general public. The project envisages development of IT solutions and an on-line

platform for monitoring and modeling waste flow in urban surroundings from the moment of generation to the moment of re-use. The platform will make available services such as digital marketing, exchange of knowledge and information along the value chain, and marketing of construction products obtained from recycled materials. The project included and analyzed different waste streams, such as construction and demolition waste, industrial waste, heavy municipal waste fractions, and sludge from wastewater treatment, most of which is currently disposed of at landfills or incinerated.

From the example of the town of Maribor and its strategy for transition towards circular economy it is possible to draw the following lessons:

- It takes a high level of awareness in decision-makers to realize that local economic and social issues may be overcome by strategic orientation towards circular economy;
- It takes a broad social consensus and understanding that only close cooperation among actors at local level, including local administration, the business sectors, and citizens, may result in development of conditions which will enable transition to the circular form of economy;
- A clearly defined institutional framework at local level is one of preconditions for successful implementation of projects in the area of circular economy, which will contribute to successful transition towards a circular society;
- Networking with international partners and inclusion into European projects and initiatives is a compulsory precondition for exchange of knowledge and a good mechanism for provision of funds for implementation of projects in the area of circular economy.

5.3. Ljubljana, Slovenia

Following the passing of the Roadmap towards circular economy, the town of Ljubljana, together with representatives of local economy and the civil sector, created and started implementation of specific circular economy programmes at its territory. The Roadmap defines specific national recommendations in four sectors (food systems; value chains based on forest resources; production; and mobility), within which Ljubljana implements its activities.

In the area of urban revitalization, Ljubljana implements some innovative approaches, such as use of residue and waste from street paving as material for roadbase and filling on the occasion of reconstruction of public areas and sidewalks, and use of old bus seats as a base for parts of street furniture. Ljubljana also has a work-site of urban culture, where different groups may test design of innovative circular objects such as sport equipment and devices for outdoor exercising. In Ljubljana, old traffic signs are neither disposed of or recycled, but are restored and returned to use.

As an example of a circular project, it may be stated that Ljubljana is one of the first towns world-wide where paper is manufactured from Japanese hemp at semi-industrial level, although this sort of weed, although highly invasive, is illegal in most countries, as it may seriously jeopardize building foundations in urban settings. The town also has a centre for revitalization of spare parts of public means of transport, which are returned to use after reparation. Finally, centre for repair and reconstruction was opened in Ljubljana back in 2013. It offers job to persons from socially vulnerable groups, while it deals with overhauling of equipment and repair of objects through engagement of craftsmen such as electricians, tailors, carpenters, etc.

5.4. Green public procurements in European towns

Green public procurements based on circular principles are one of the most obvious and simplest manners in which the public sector, including LSGs, may promote and initiate circular economy at local level. Depending on their size and the budget, towns and municipalities have larger or smaller purchasing power, thus potential for creating demand, i.e. market for certain types of goods and services based on circular economy. It is assessed that in the EU, excluding the sector of public companies, about 14% of GDP, i.e. € 1.8 billion EUR a year is spent on green public procurement⁴⁸. This is the reason why within the circular package, more precisely the Action plan for circular economy, the European Union states green public procurements as one of the basic mechanisms for increasing of sustainability and introduction of circular economy in the main economic trends.

Circular economy principles may be applied at almost all types of procurements at local level. However, it is possible to separate four important categories of goods and services which are appropriate for procurement with application of circular economy criteria due to their potential impact on the environment, importance for the budget, possibility of impact to the market, and availability of green or circular options. These are: construction and reconstruction of facilities and infrastructure, purchase of food and hospitality services, purchase of vehicles, and purchase of products and devices which use energy.

Green procurements in the area of development of infrastructure may be illustrated using the example of construction of “Sever” hospital in Vienna, which was conducted in line with principles of sustainability in all stages of procurement, as well as in the course of construction. The principles and criteria used in the public procurement of services included a brownfield investment, i.e. restoration of the facility, design, and construction in line with natural values of the environment (green roofs and facades), minimized use of drinking water and use of rainwater, minimization of overall demand for energy, implementation of renewable energy sources, environmental protection, high standards for quality of ambiance air, accessibility, flexibility in use, and minimization of waste and noise generation in the course of construction.

Italian town of Torino is a good example of green public procurements which includes hospitality/catering services and food waste management. In 2013, the town administration introduced a range of requirements on purchase of hospitality/catering services for school kitchens, such as use of energy-efficient devices for preparation of food, use of delivery vehicles which have minimum impact on the environment, minimization of packaging materials, thus waste generation as well, use of water from the town water supply system, and avoidance of bottled water and plastic packaging. Beside this, bidders had to guarantee delivery of meals in decanters for multiple uses. This measure individually resulted in the reduction of plastic waste of 157 tons on annual level

⁴⁸ Buying green! A handbook on green public procurement, 3rd Edition, European Commission, 2016

6. The research

The research of capacities for transition from linear to circular economy at local level was realized through a question poll which was conducted in the course of July and August 2019. The survey included political representatives in LSGs and local administration and public utility company employees. The question poll, which was provided as a *Google* form, was filed to more than five hundred electronic addresses, via the SCTM network, but also via the database of contacts of the Business association KOMDEL. The survey form was filed through the SCTM base of mayors' offices, including offices of mayors of city municipalities, as well as the Network for local economic development and Network of eco-commissioners.

Even though this activity was conducted in the period of annual leaves, which could have been a significant factor of limitation in terms of responses, the research may be deemed successful, as the number of collected responses to the survey questionnaire was 121, filed from 93 LSGs. Having in mind that there is no knowledge on any previous similar activity conducted in Serbian towns and municipalities, the importance of this research is insomuch larger.

6.1. The aim of the research

The research was conducted with the aim to establish the level of familiarity with the circular economy concept on part of representatives of LSGs, i.e. the level to which circular economy principles are incorporated in local policies and strategies. Beside this, enabling factors and barriers were also researched and the connection was sought between circular economy practices and capacities of local administrations and other actors at local level. The final aim of the research, in combination with desktop analysis, was that it could serve as a base for formulation of positions and recommendations for decision-makers and employees in LSGs in relation to introduction of circular principles in local strategic plans, policies, and practices, and that it could present a base for development of practical policies of Standing conference of towns and municipalities in the area of circular economy.

6.2. Research methodology and questionnaire structure

The survey questionnaire was structured in several thematic units. Besides basic information, but also personal data on the person filling in the questionnaire and the LSG in question, the questionnaire also contains thematic units relating to: the strategic framework for circular economy at local level; capacity of the LSG for treatment of issues in relation to circular economy; local economic setting and institutional connectedness at local level; educational potential for development of circular economy; as well as promotion and support which LSG extend to development of circular economy at their territories. The questionnaire comprises two basic types of questions, those which serve for quantitative analysis and gaining an objective insight into the condition in the field, and those of subjective character, which are aimed at development of the qualitative part of the analysis in terms of LSG capacities for creation of conditions for transition to circular economy at local level. The questionnaire in the form of a *Google* questionnaire may be found on the link <https://forms.gle/iygnLUUfqgHqMkfq5>. The results of the research and conclusions were organized and presented in line with the thematic areas given in the questionnaire.

6.3. Scope and relevance of the sample

The number of LSG in Serbia is defined by the Law on territorial organization of the Republic of Serbia⁴⁹. In Serbia (without the AP of Kosovo and Metohija) there are 145 LSGs: Belgrade, as the capital, 27 towns, and 117 municipalities. The Law on local self-government provides that towns with Articles of association may organize two or more town municipalities at their territory. So far, this possibility has been used by the City of Belgrade (17 town municipalities), Niš (5 town municipalities), Požarevac (1 town municipality), Užice (1 town municipality), and Vranje (1 town municipality).

	LSG	Type of LSG	Region	Population		LSG	Type of LSG	Region	Population
1	Arandelovac	municip.	Šumadija and W Serbia	46.225	48	Odžaci	municip.	Vojvodina	30.154
2	Arilje	municip.	Šumadija and W Serbia	18.792	49	Opovo	municip.	Vojvodina	10.440
3	Bač	municip.	Vojvodina	14.405	50	Osečina	municip.	Šumadija and W Serbia	12.536
4	Bački Petrovac	municip.	Vojvodina	13.418	51	Pančevo	Town	Vojvodina	123.414
5	Bajina Bašta	municip.	Šumadija and W Serbia	26.022	52	Plandište	municip.	Vojvodina	11.336
6	Barajevo	city munic.	Beograd	27.110	53	Požarevac	town	S and E Serbia	75.334
7	Batočina	municip.	Šumadija and W Serbia	11.760	54	Priboj	municip.	Šumadija and W Serbia	27.133
8	Bečej	municip.	Vojvodina	37.351	55	Prijepolje	municip.	Šumadija and W Serbia	37.059
9	Bela Crkva	municip.	Vojvodina	17.367	56	Prokuplje	Town	S and E Serbia	37.059
10	Beočin	municip.	Vojvodina	15.726	57	Rakovica	city munic.	Belgrade	108.641
11	Beograd	city	Belgrade	1.659.440	58	Rekovac	municip.	Šumadija and W Serbia	11.055
12	Bosilegrad	municip.	S and E Serbia	8.129	59	Ruma	municip.	Vojvodina	54.339
13	Brus	municip.	Šumadija and W Serbia	16.317	60	Šabac	Town	Šumadija and W Serbia	115.884
14	Bujanovac	municip.	S and E Serbia	18.067	61	Sečanj	municip.	Vojvodina	13.267
15	Čačak	city	Šumadija and W Serbia	115.337	62	Senta	municip.	Vojvodina	23.316
16	Čajetina	municip.	Šumadija and W Serbia	14.745	63	Šid	municip.	Vojvodina	34.188
17	Čoka	municip.	Vojvodina	11.398	64	Smederevo	Town	S and E Serbia	108.209
18	Crveni Krst	city munic.	South and east Serbia	32.301	65	Sombor	Town	Vojvodina	85.903
19	Čukarica	city munic.	Belgrade	181.231	66	Srbobran	municip.	Vojvodina	16.317
20	Dimitrovgrad	municip.	S and E Serbia	10.118	67	Sremska Mitrovica	Town	Vojvodina	79.940
21	Doljevac	municip.	S and E Serbia	18.463	68	Stara Pazova	municip.	Vojvodina	65.792
22	Golubac	municip.	S and E Serbia	8.331	69	Subotica	Town	Vojvodina	141.554
23	Gornji Milanovac	municip.	Šumadija and W Serbia	44.406	70	Surčin	city munic.	Belgrade	43.819
24	Indija	municip.	Vojvodina	47.433	71	Surdulica	municip.	S and E Serbia	20.319
25	Kladovo	municip.	S and E Serbia	20.635	72	Svilajnac	municip.	Šumadija and W Serbia	23.551
26	Kovačica	municip.	Vojvodina	25.274	73	Temerin	municip.	Vojvodina	28.287
27	Kragujevac	city	Šumadija and W Serbia	179.417	74	Titel	municip.	Vojvodina	15.738
28	Krupanj	municip.	Šumadija and W Serbia	17.295	75	Topola	municip.	Šumadija and W Serbia	22.329

⁴⁹ Law on territorial organization of the Republic of Serbia ("Official Gazette of RS", No. 129/2007, 18/2016, and 47/2018)

29	Kruševac	city	Šumadija and W Serbia	128.752	76	Trgovište	municip.	S and E Serbia	5.091
30	Kučevo	municip.	Južna i istočna Srbija	15.516	77	Trstenik	municip.	Šumadija and W Serbia	42.966
31	Kula	municip.	Vojvodina	43.101	78	Tutin	municip.	Šumadija and W Serbia	31.155
32	Kuršumlija	municip.	S and E Serbia	19.213	79	Ub	municip.	Šumadija and W Serbia	29.101
33	Lajkovac	municip.	Šumadija and W Serbia	15.475	80	Valjevo	Town	Šumadija and W Serbia	90.312
34	Lebane	municip.	S and E Serbia	22.000	81	Velika Plana	municip.	S and E Serbia	40.902
35	Leskovac	city	S and E Serbia	144.206	82	Veliko Gradište	municip.	S and E Serbia	17.610
36	Mali Iđoš	municip.	Vojvodina	12.031	83	Vladičin Han	municip.	S and E Serbia	20.871
37	Mali Zvornik	municip.	Šumadija and W Serbia	12.482	84	Vlasotince	municip.	S and E Serbia	29.893
38	Malo Crniće	municip.	S and E Serbia	11.458	85	Vranje	Town	S and E Serbia	83.524
39	Merošina	municip.	S and E Serbia	13.968	86	Vrnjačka Banja	municip.	Šumadija and W Serbia	27.527
40	Mionica	municip.	Šumadija and W Serbia	14.335	87	Vršac	Town	Vojvodina	52.026
41	Negotin	municip.	S and E Serbia	37.056	88	Žabalj	municip.	Vojvodina	26.134
42	Niš	city	S and E Serbia	260.237	89	Žabari	municip.	S and E Serbia	13.800
43	Nova Varoš	municip.	Šumadija and W Serbia	16.638	90	Žagubica	municip.	S and E Serbia	12.737
44	Novi Kneževac	municip.	Vojvodina	11.269	91	Zječar	Town	S and E Serbia	59.461
45	Novi Pazar	city	Šumadija and W Serbia	100.410	92	Žitište	municip.	Vojvodina	16.841
46	Novi Sad	city	Vojvodina	341.625	93	Žitoradja	municip.	S and E Serbia	16.368
47	Obrenovac	city munic.	Belgrade	72.524	94	Zrenjanin	Town	Vojvodina	123.362

Table 1. List of towns, municipalities and city municipalities that participated in survey

The questionnaire was filed to multiple electronic accounts of all 170 towns, municipalities, and town municipalities – members of Standing Conference of Towns and Municipalities. Having in mind that the sample was not pre-defined and that its scope and representativeness were not planned, relevance, character, and characteristics of the sample were defined in the course of the research. Representatives of 21 towns, 67 municipalities, and town municipalities, i.e. 94 LSGs responded to the questionnaire, while the total number of completed questionnaires was 121. The list of surveyed towns, municipalities, and town municipalities which includes the name, type, and region by NUTS 3 classification, as well as the number of population according to the 2011 Census is provided in Table 1.

Map of the territorial organization of the Republic of Serbia

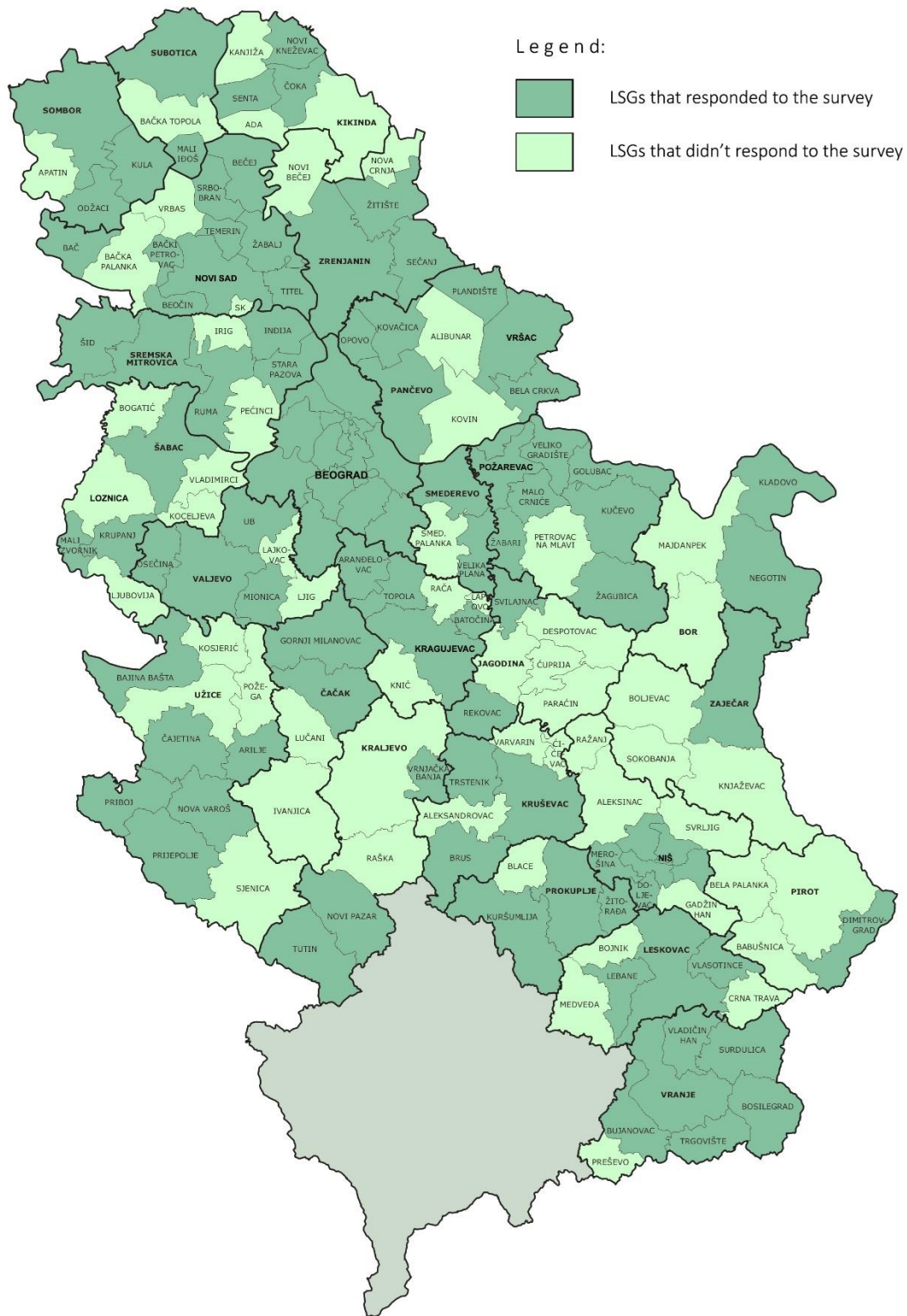


Figure 6. Overview of the cities, municipalities and city municipalities that participated in survey

The relevance of the sample may be assessed by the participation share of towns in municipalities in the research, expressed in percentage. Out of the total number of LSGs, 60.7% of them (or 88 out of 145) responded to the survey. If city municipalities are regarded as well, the percentage is somewhat lower, or 55.3% (94 out of 170). The percentage of population in the polled LSGs is very high, amounting to 77.9%.

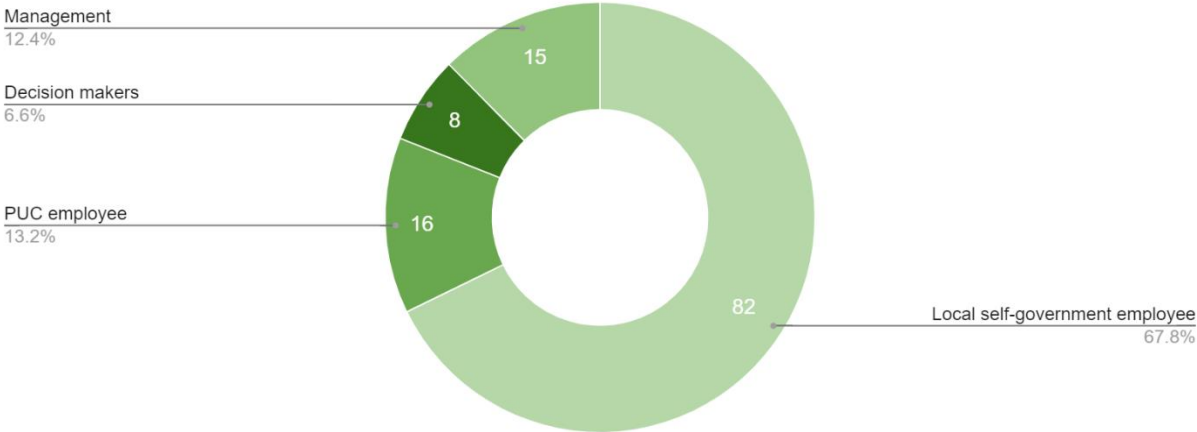
This is the consequence of the fact that most towns, including Belgrade as the largest urban centre, participated in the research.

Interestingly, the disposition of LSGs which participated in the research in the regions Vojvodina, Šumadija, West Serbia, South and East Serbia is almost identical. The territorial disposition of LSGs which participated in the research is presented in Figure 6.

Representatives of local self-government and employees in public utility companies both took part in the research. Out of the total of 121 responses, 97 or 80.2% were filed from local self-government, while PUC representatives filled in 24 or 19.8% out of the total number of survey forms. Employees in LSGs provided most responses, 82 of them or 67.8% out of the total number of responses. The surveyed local clerks who participated in the survey occupied different positions within municipal administration, form offices for local economic development, via departments and services for environmental protection, utility activities, social activities, economy, public procurement and related operations, to employees working in inspection services. Employees in public utility companies which predominantly operate in the area of municipal waste management were the second most numerous group of interviewees. As many as 16 responses, or 13.2% came from this group.

The group comprising mid-level management, i.e. managers in local administration and in local public utility companies was the next by the number of responses. This group, the share of which in the total sample amounted to 12.4%, i.e. 15 responses, comprised heads of municipal administration, sectors, or departments, and heads of services or offices. Finally, the fewest responses, 8 or 6.6%, came from political decision-makers at local level. This group comprises mayors, their deputies, and assistants, as well as directors of public utility companies. The disposition of participation in the research based on their position within the LSG or public utility company is given on Graph 1.

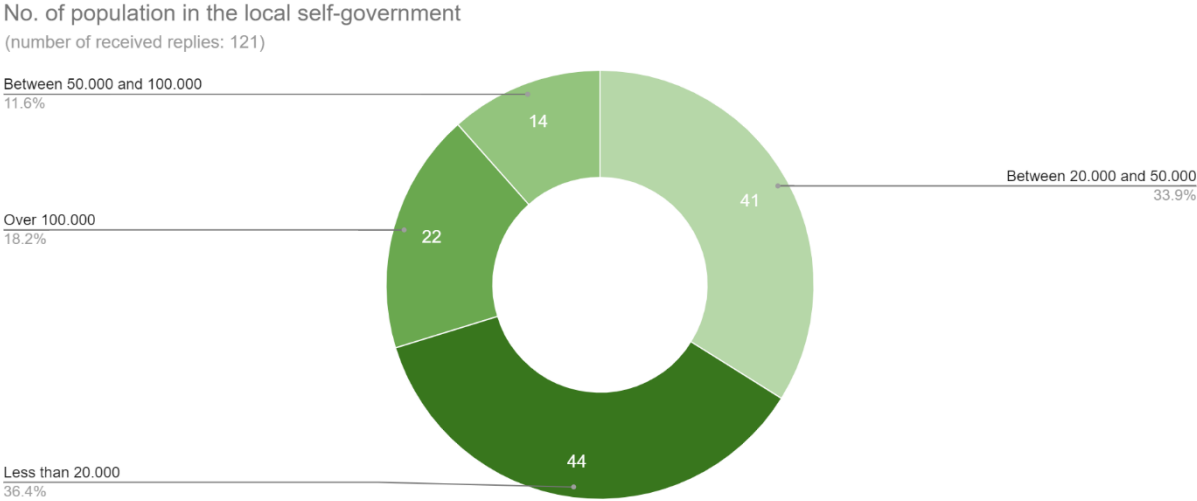
Received replies according to PUC or local self-government representation
(total no. of received replies 121)



Graph 1. Received replies according to PUC or local self-government representation

When observing the disposition of responses by the size of the LSG in relation to the total number of questionnaires filled, the largest number of replies came from small municipalities with up to 20,000 inhabitants. Out of the total of 121 responses, 44 or 36.4% were from this category. The second by size with 41 responses or 33.9% is the category of LSG with the population between 20,000 and 50,000 inhabitants. These two groups of municipalities account for 70.3% of all responses in the overall sample.

The remaining two categories, i.e. LSGs with the population between 50,000 and 100,000 inhabitants and those with more than 100,000 inhabitants participated in the sample with 11.6% or 14 responses, i.e. 18.2% or 22 responses respectively. The presentation of disposition of responses to the survey questionnaire depending on the size of the LSG which filed the questionnaire is given in Graph 2.



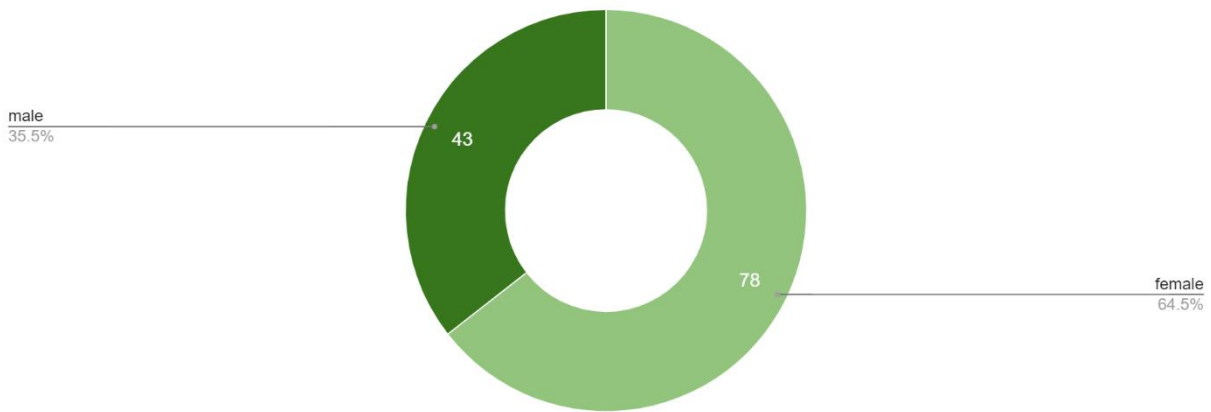
Graph 2. No. of population in the local self-government

In terms of gender share, almost two-thirds of the responses, or 64.5%, were provided by female respondents, 78 of them. As many as 43 respondents or 35.5% of the total number of respondents were men. The share of respondents by gender is presented on Graph 3.

This data may lead to the conclusion that most employees in local self-government are females, which is even more pronounced when it comes to jobs in relation to environmental protection or local economic development. This claim is additionally corroborated by a gender analysis of a part of the sample relating to LSG (94 responses), 70.1% of which comprises female persons, while only 29.9% responses were provided by men. When it comes to the part of the sample relating to responses from public utility companies (24 responses), the situation is somewhat different. A larger percentage of responses, 58.3%, came from male respondents, while the percentage of responses provided by women amounted to 41.7%.

However, when data on gender status is compared with the data on positions of participants in the research within public bodies and companies which they represent, it may be observed that at the level of decision-makers the situation is entirely different. Namely, as many as 75% of decision-makers are men, while only 25% of women occupy the highest positions.

Gender of survey participants
(number of received replies: 121)



Graph 3. Gender of survey participants

Participation in the research was voluntary, while the conclusion which may be drawn from the previous part of the analysis is that all persons who responded to the questionnaire were fully eligible to do so. Beside this, the general conclusion is that both the scope and coverage were fully acceptable, both in terms of the total number of responses and percentage, as well as in terms of territory and size of LSG which participated in the research. Also, except for certain limitations which will be presented in more detail in the text below, it was concluded that the findings are relevant and that they may be used to draw conclusions and formulate positions and practical policies in terms of introduction of circular economy at local level.

6.4. Limitations of the methodological approach

As factors of limitation, it is possible to state at least two shortcomings in the methodological approach. The first relates to the sample of towns and municipalities which took part in the research and the already mentioned absence of planning. Here it is not the representative quality which is questioned, but the impossibility to monitor trends and compare the research with possible future researches of the kind. This shortcoming may be rectified if after a certain period of time the research is repeated targeting all LSGs which have been included in this research, or just a certain number which are found to be representative.

For trend monitoring, the fact that some questions in the survey were formulated so that the responses may be based on objective, verifiable facts, while other questions are fully subjective requesting personal opinion or position from the respondent might even be a greater issue. However, this type of qualitative analysis is of exceptional importance for formulation of positions and recommendations on part of LSG in terms of creation of conditions for transition to the circular form of operations at local level.

6.5. General observations

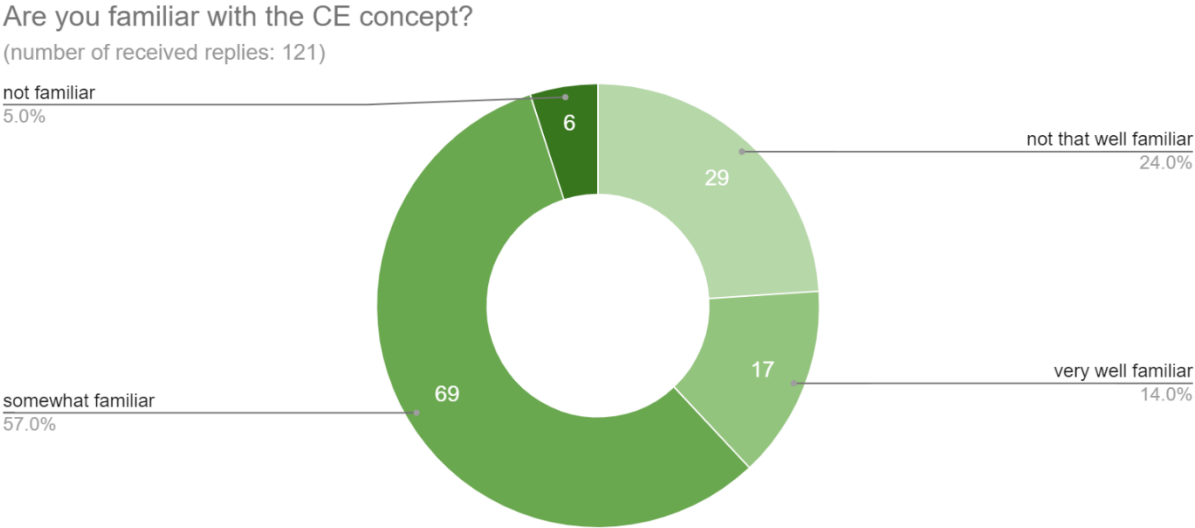
Based on the conducted research and analysis of the obtained responses, it is possible to draw some principles on the awareness on the concept and principles of circular economy on part of LSG and PUC representatives, on respondents' understanding of opportunities and advantages offered by this concept, as well as on existing practices, preconditions, and capacities for its implementation currently existing at local level.

6.6. Analysis of responses to individual questions

This part of the document contains an analysis of responses to individual questions of surveyed representatives of towns and municipalities and public utility companies by groups of questions.

6.6.1 General positions and familiarity with circular economy

This group, which comprised six questions, is to provide an insight into general understanding of the concept, as well as interdependence of different factors and actors which may have impact on faster acceptance of the circular economy concept at local level. The first question relates to general familiarity with the concept in local representatives and is given as a multiple choice question with several answers only one of which is correct. The remaining five questions relate to their positions on actuating factors and barriers for circular economy, level of awareness, as well as actors and sectors suitable for initiating circular economy at local level. These questions are provided with a number of answers which need to be ranked by order of importance.



Graph 4. Local self-government representatives' stands on the CE concept

When it comes to personal attitudes on familiarity with circular economy concept, most of the surveyed LSG and PUC representatives, more precisely 69% and 57% of them, replied that they were familiar with it to an extent, while 17% or 14% of them responded they were quite familiar with the concept. The number of respondents who are poorly familiar with the circular economy concept or not familiar at all amounts to 29 and 6 respectively, or 25% and 5% of the sample when expressed in percentage. The total number of those who stated they were familiar with the concept amounted to 86% and 71.1%, which is quite a good result and a good starting point for implementation of activities in the area of circular economy at local level. The percentage is even higher if only decision-makers are taken into account, and amounts to 75%; however, as this group presents only a very small portion of the sample (only 0.06%), this data must be taken with a pinch of salt.

When data on awareness of the circular economy concept is compared with gender disposition, it turns out that 74.3% of the female part of the sample was familiar with this concept, while in the male part familiarity with this concept was somewhat lower, amounting to 65.1%. Interesting results are obtained when this type of coupling is done with respondents from LSG and PUC. Percentages in both groups within the sample are

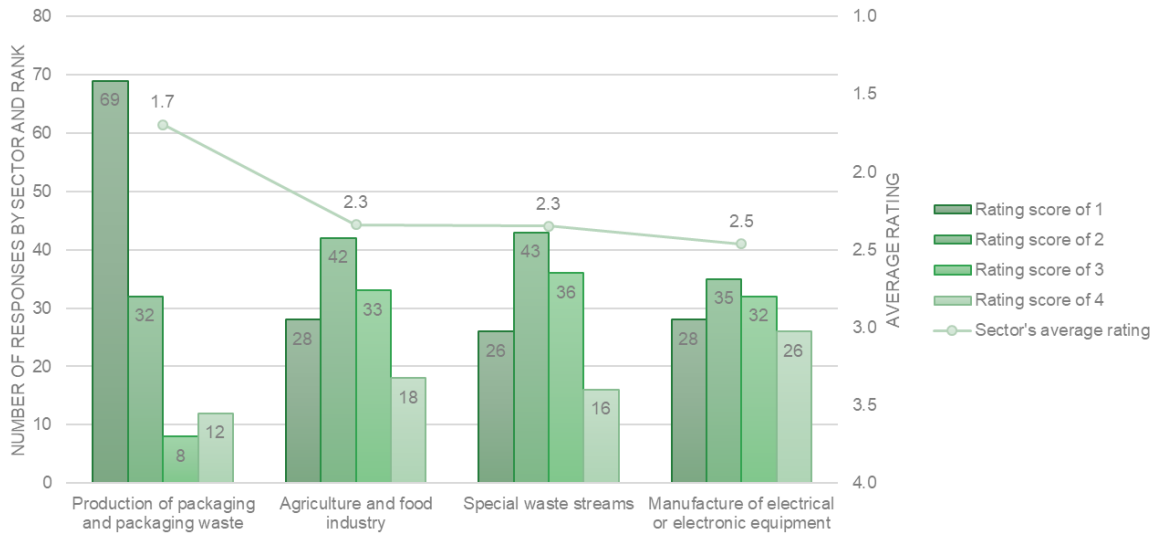
high and very similar. In the part of the sample relating to representatives of LSGs, the percentage of those who responded that they were familiar with the circular economy concept amounted to 70.8%, while in PUC representatives it amounted to 71.1%.

When responses on familiarity with the circular economy concept are placed in the context of size of LSG, it is possible to learn that representatives of large towns (with more than 100,000 inhabitants) are somewhat better familiar than other categories with an exceptionally high percentage of 81.8% responses pointing to partial or high familiarity with the concept. Other groups within the sample separated by size of the LSG also have high percentages, which suggests familiarity with the circular economy concept and which range from 74.4% in LSG with population between 20,000 and 50,000 inhabitants, more than 66.7% in towns and municipalities with population between 50,000 and 100,000 inhabitants, while in municipalities with fewer than 20,000 inhabitants this percentage amounts to 63.6%.

Positions in relation to sectors in which circular economy principles are to be implemented first were researched using a question with four pre-defined answers, i.e. four sectors offered, which needed to be ranked from 1 to 4. Within this question, it was also possible to add a response which was not among the four replies offered, but none of the respondents used this option. The offered responses comprised the following sectors: production of packaging and packaging waste; agriculture and food industry; separate waste streams; and production of electrical and electronic devices.

Production of packaging and packaging waste was ranked as the highest. This sector, which was graded somewhat higher than the other sectors with 1.7 (presented with a dot on the graph), was recognized as the most probable and most likely sector for implementation of circular economy principles. The remaining three sectors were graded similarly so that they do not lag behind the best-ranked very much. Their total grades are as follows: 2.3 for agriculture and food industry; 2.3 for separate waste streams, and 2.5 for production of electrical and electronic appliances. Results of the analysis of this question are presented in Graph 5.

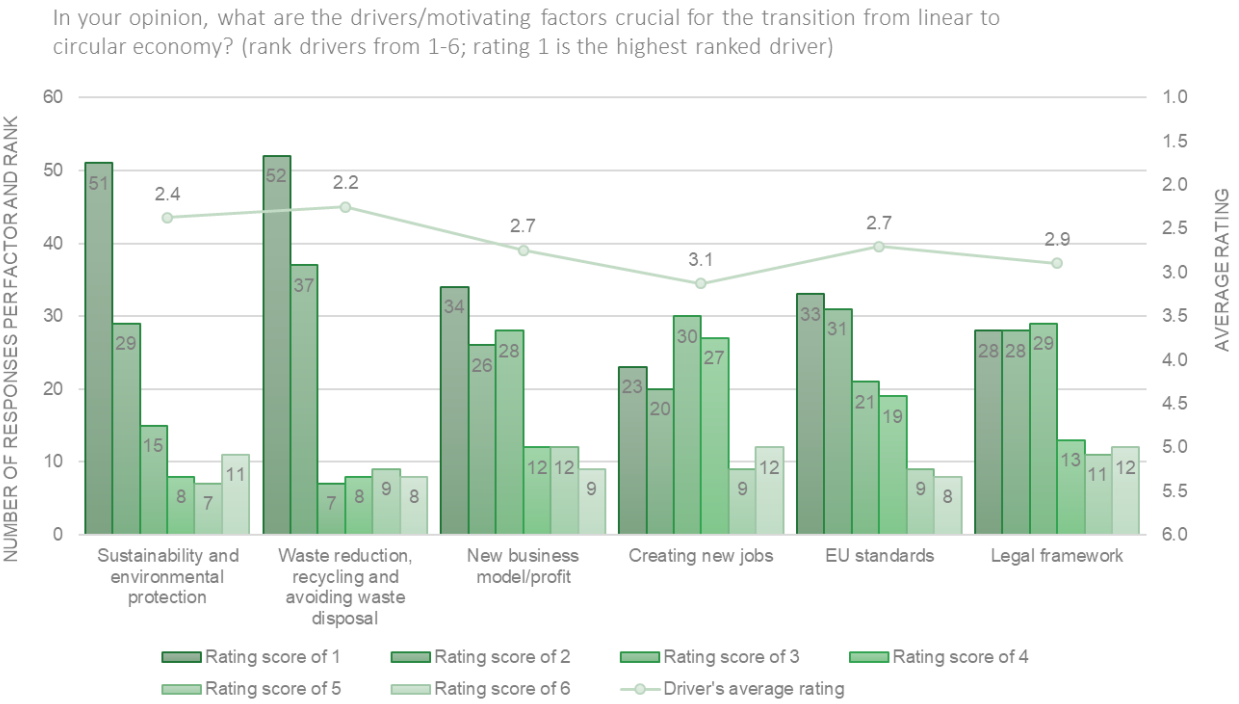
In your opinion, in which sectors will the principles of the circular economy first apply? (Rank sectors 1-4; grade 1 is assigned to the highest ranking sector)



Graph 5. Positions of survey participants on sectors with the most CE implementation prospects

Benefits for the local community resulting from transition from linear to circular form of business operations may be also deemed initiating factors which motivate local actors to act. When asked to assess which factors are of key importance for initiation of transition of the local economy towards

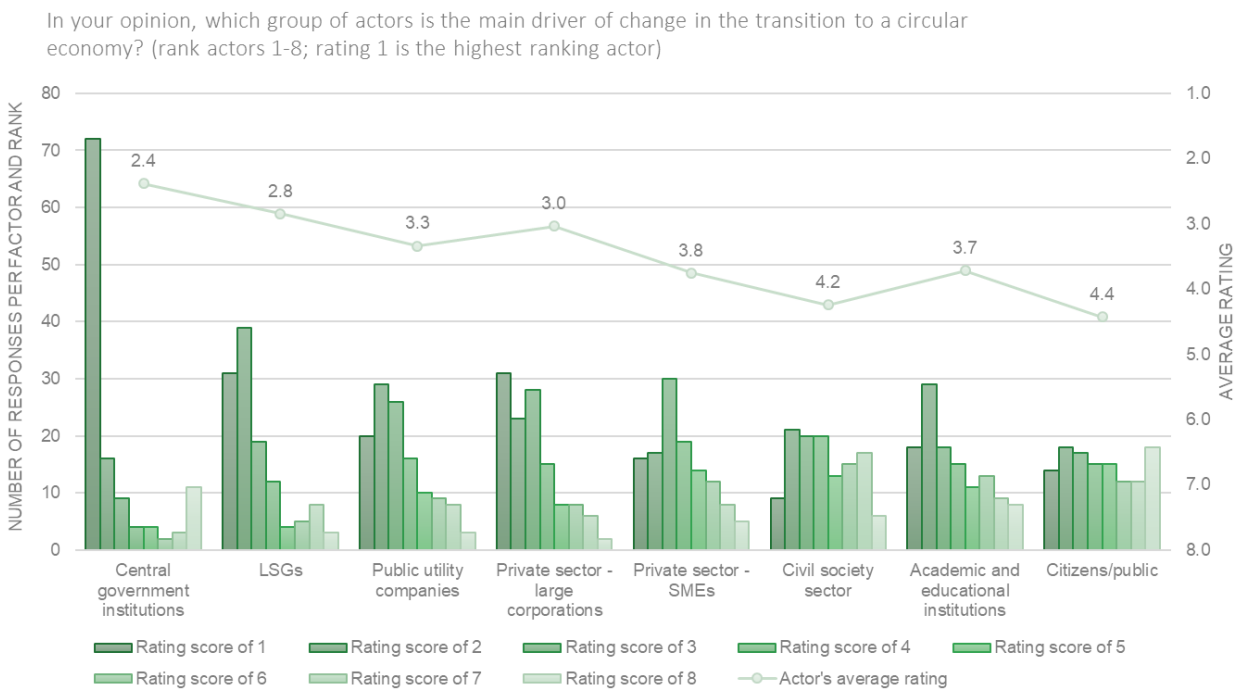
circular economy, LSG and PUC representatives who took part in the survey singled out two groups of benefits which occur as a consequence of transition to circular economy: reduced quantities of waste, recycling, and prevention of waste disposal; and sustainability and environmental protection. These two groups of factors were graded the highest (the highest grades were 51, i.e. 52), while mean rank values amounted to 2.4 and 2.2. In the opinion of respondents, other factors did not lag much behind when it comes to scores. Following by the rank with the total mean grade of 2.7 are new business models and European Union standards. These are followed by the legal framework with 2.9 and creation of new jobs with 3.1. Such score points to good understanding of the essence of circular economy as a tool for achievement of sustainable development goals and one of basic prerequisites for preservation of the environment and rational use of resources. Responses to the question on key factors for initiation of circular economy at local level, for which six pre-defined responses were offered, are given in Graph 6.



Graph 6. Positions of local representatives on driver/motivation factors crucial for transition towards CE

Responses to the question on actors who are expected to be the main initiators of changes in terms of transition to the circular type of economy are very interesting. Eight possible replies to this question were offered while most respondents, as many as 71 of them, graded institutions of central authorities with the highest grade as the most important actors in the process of initiation of circular economy in our country. This group of actors includes the government, ministries, first of all the Ministry of environmental protection and Ministry of economics, but other ministries as well, same as other state bodies such as the Environmental protection agency or provincial secretariats.

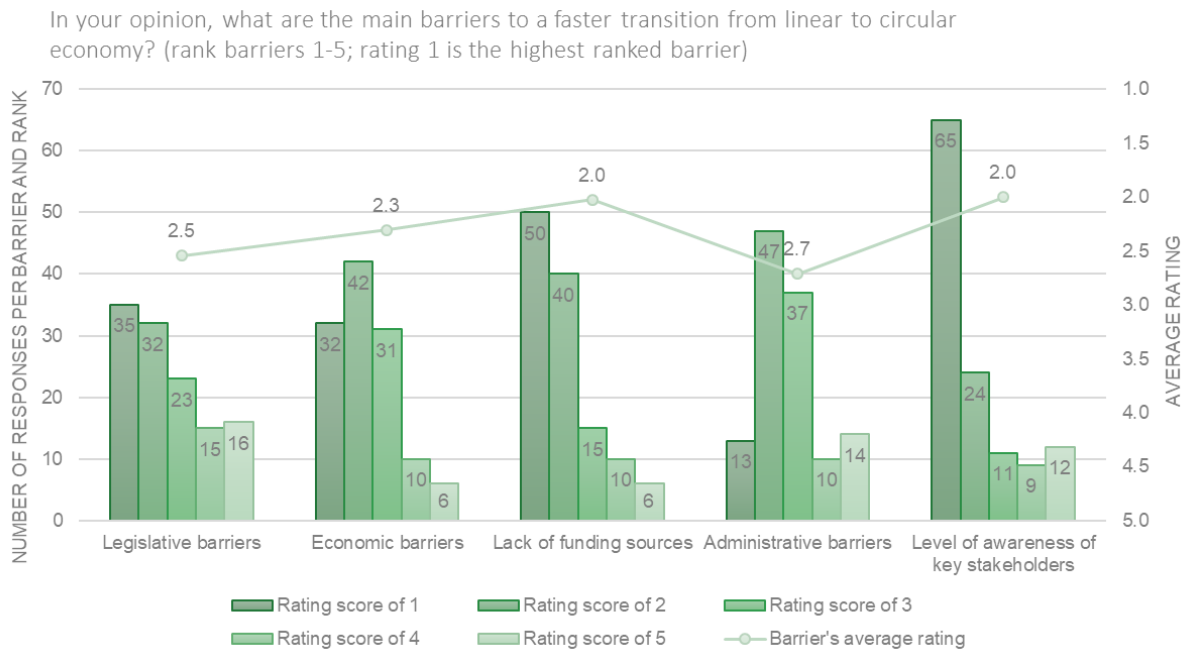
With the mean grade of 2.8, LSGs were graded as the second best. The participants in the survey rightly recognized them as a very important actor for circular economy. This speaks about understanding of the role which towns and municipalities need to take so as to accelerate transition from the linear to the circular form of business operations and make it more massive at local level, which is important as the respondents came from this level of authority.



Graph 7. Positions of local representatives on group of actors perceived as main drivers of transition towards CE

Following institutions of the state and local self-government, participants in the survey recognized economic entities, both in the public and private sector, as the following circle of actors of importance for circular economy. Large business entities and public utility companies were graded with a somewhat higher mean grade (3 and 3.3) in comparison to small and medium-sized companies which were graded 3.8. The survey participants also recognize scientific and research institutions as an important factor in distribution of the idea of circular economy, as they could compensate for the lack of capacities, especially at local level, and were graded 3.7. Finally, civil society organizations and citizens are given the slightest importance in this process (with the grades 4.2 and 4.4), which doubtless speaks about the need to conduct additional awareness raising on the importance of inclusion of citizens and the civil sector in processes related to circular economy at local level. Responses to the question on the most important actors in the process of transition towards circular economy are given in Graph 7.

The following question in the survey related to the main barriers for faster transition from the linear to the circular type of economy. Respondents were offered five responses to this question which were to be graded with 1 to 5. This question is very interesting, while the responses to it are even more so, as they explicitly point to lack of awareness on importance and benefits from circular economy in key actors, including decision-makers at local level. This offered response was marked with the highest grade 65 times, while its mean grade is of rank 2. Another offered response also has the mean grade of almost 2, or 50 grades of the highest value; it relates to the lack of financial instruments, i.e. source of finances for circular economy projects at local level. These two offered responses, i.e. barriers, were also graded exceptionally high by political decision-makers at local level, who assigned them priority in comparison to other responses offered.

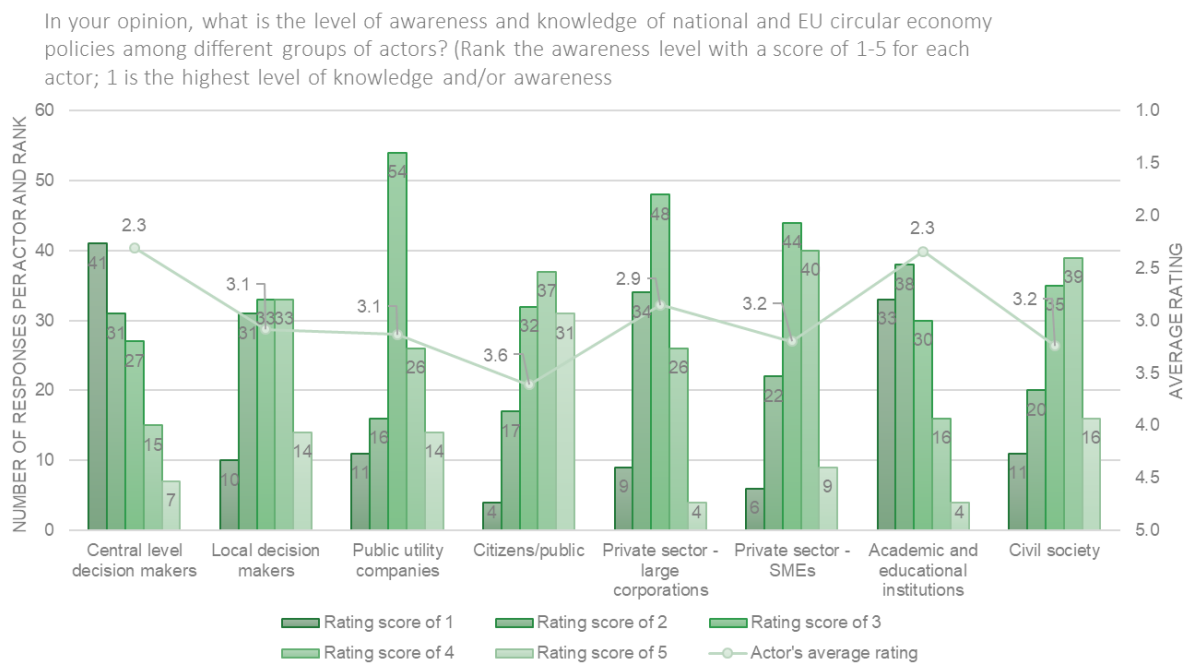


Graph 8. Positions of local representatives on barriers for a faster transition from linear to circular economy

The remaining three pre-defined responses are ranked with somewhat inferior grades. Economic barriers, i.e. lack of a suitable economic setting were graded 2.3; inadequate or incomplete legal framework was graded 2.5, while administrative barriers were ranked 2.7. Detailed results of the analysis of responses to this question are given in Graph 8.

The last question in this segment related to the level of awareness and knowledge of national and EU policies in the area of circular economy among different groups of actors. Same as in the case of previous questions, there were eight offered responses which were to be ranked, in this case from 1 to 5. The offered responses stated the following groups of actors: decision-makers at central level; decision-makers at local level; public utility companies; citizens and public; large business entities; small and medium-sized companies; academic and educational institutions; and the civil sector. Total mean grades for the offered responses range between 2.3 and 3.6. Even though the results of the poll are rather balanced when it comes to the highest grades, participants in the research believed that decision-makers at central level and representatives of educational and academic institutions are those with the highest level of awareness on circular economy. They are followed by large business entities with grade 2.9. The next are decision-makers at local level and PUC representatives with 3.1 and small and medium-sized companies and the civil sector with 3.2. Having in mind a great deal of responsibility on part of decision-makers at local level, including PUCs, in terms of introduction of circular economy, it is necessary to strengthen activities aimed at raising of level of their awareness and education.

Same as with the issue on importance of actors for initiation of the process of transition, here respondents also perceived citizens as those most poorly informed and with the lowest level of awareness. This assessment points to the necessity of early citizen inclusion, their education and obtaining their positive attitude towards decisions aimed at initiation of transition towards circular economy at local level. This statement becomes more important if we take into account that the survey indicates that the sector of packaging and packaging waste needs to occupy a significant position in the process of transition towards circular economy which may not possibly succeed unless citizens who are fully aware take part in it. Responses to the question about awareness of actors of national and EU circular economy policies are presented in Graph 9.



Graph 9. Positions of local representatives on level of awareness and knowledge of national and EU CE policies among different groups of actors

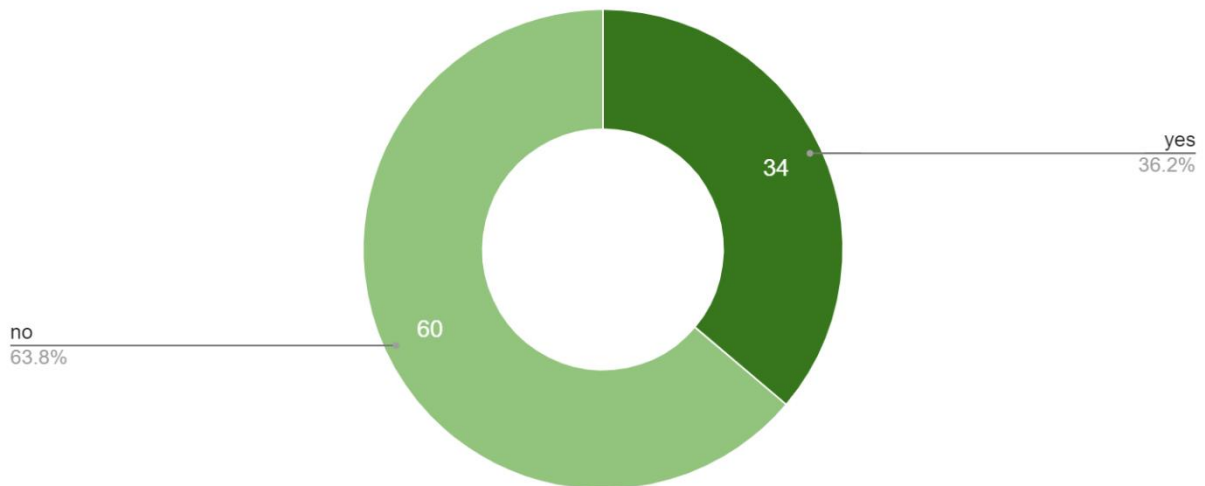
6.6.2 Strategic framework at local level

High level of awareness and political will are doubtless key prerequisites for faster adoption and implementation of circular economy principles at local level. This is corroborated by the first part of the analysis of the survey questionnaires. However, to implement a certain determination for which this prerequisite has been fulfilled, it is necessary that it is incorporated in strategic documents at local level. This is the reason why the third part of the questionnaire, comprising eight questions, was conceived in such a way as to gain an insight of the strategic framework for development of circular economy at local level. Having in mind that circular economy is a relatively new topic in our region, and the fact that Serbia has not yet adopted any circular economy strategy at any level, local, provincial, or national, questions in relation to the strategic framework were placed in the context of other local strategic documents, primarily those relating to waste management.

When asked whether circular economy principles are recognized in strategic documents of the local self-government unit, out of the total of 121 interviewees 80 or 66.1% of them responded negatively. Only 33.9% or 41 respondents replied affirmatively to this question. However, when these replies are compared to the local number of LSG which participated in the survey, which amounts to 94, percentages deviate slightly, while the results obtained are as follows: as many as 60 or 63.8% of LSG do not have circular economy principles incorporated in their strategic documents, while 34 LSG or 36.2% have them, as it is shown in Graph 10.

Are the CE principles recognized in the strategic documents of your municipality?

(number of local self-governments: 94)



Graph 10. Occurrence of the CE principles in local strategic documents

The question on inclusion of circular economy principles in strategic documents at local level was additionally deepened with an additional question. Participants in the research were asked to state a particular document to which this claim relates. In most cases, the respondents stated either the local waste management plan (41%), or the sustainable development strategy of the town or municipality (41%). All the other responses are either vague or include documents such as the local action plan for employment, local environmental action plan, municipal development strategy, environmental protection programme, and inter-municipal agreement on waste management. In terms of validity of the given documents, it is interesting to mention that validity of most local waste management plans is about to expire, as they were passed in 2010 or 2011 for the period of 10 years, shortly after the adoption of the Law on waste management. Shaving in mind that there are no legal prerequisites for passing of local circular economy plans, as well as the fact that municipalities will have the obligation of renewing their local waste management plans in the following two years, this time, in the light of expectation the new Waste management strategy, it appears that it is the right moment to direct activities aimed at promotion of circular economy to LSGs, so that circular economy principles could be incorporated in local waste management plans. Other documents were adopted somewhat later, but their validity period is five years, which means that they are also suitable for promotion of circular economy principles. All of these gain additional importance if provisions of the Law on the planning system and the obligation of passing of umbrella development plans of towns and municipalities are taken into account.

The next group of questions related to occurrence of individual circular economy principles in waste management plans and practices. When it comes to waste management plans, circular economy principles are recognized in more than 50% cases. When asked whether the waste management plan contains a proposal for re-use and recycling of municipal waste components, out of 94 LSG participating in the survey 51 replied affirmatively (54.3%). When asked about the proposal in relation to reduction of waste generation and disposal of biodegradable and packaging waste, 49 towns and municipalities, or 52.1%, replied positively. When asked about existence of primary selection plans, 56 respondents, or 59.6%, replied affirmatively. However, when it comes to practice, only 31.9% of respondents or 30 LSGs have introduced, to an extent, selection and separate waste collection at their territories. When analyzing the structure of responses by size of the local self-government unit, the results do not deviate much from general results, except in the case of selection and separate collection practices in large towns (with more than 100,000 inhabitants) where this figure amounts to exactly 50%.

Such results of the survey only speak in favour of the claim that it is necessary to intensify awareness-raising activities of decision-makers and strengthen capacities of administration, so as to incorporate circular economy. But modern approaches and goals in waste management as well, in plans and practices at local level.



Graph 11. PCE principles included in waste management plans and practices on local level

The segment of the questionnaire dealing with the issue of inclusion of circular economy principles in the strategic framework at local level also contains the question on affiliation of the LSG to some regional waste management system as well as the question on the recycling rate at the territory of the municipality. In Serbia, 11 waste management regions have been established while 10 of them are active at the moment. Having in mind that the National waste management plan will be dealing with the issue of introduction of regional waste management systems, and that recycling rates vary considerably and are not correlated to data used by state institutions, these questions were not further analyzed.

6.6.3 LSG capacities for treating the issues related to circular economy

Another important prerequisite for a certain topic to get hold at local level is existence of capacities of local administration, i.e. adequate structure within the administration, as well as employees who have needed knowledge and awareness for quality performance of duties in the area of promotion and support to circular economy. These issues are contained in the fourth segment which comprises five questions.

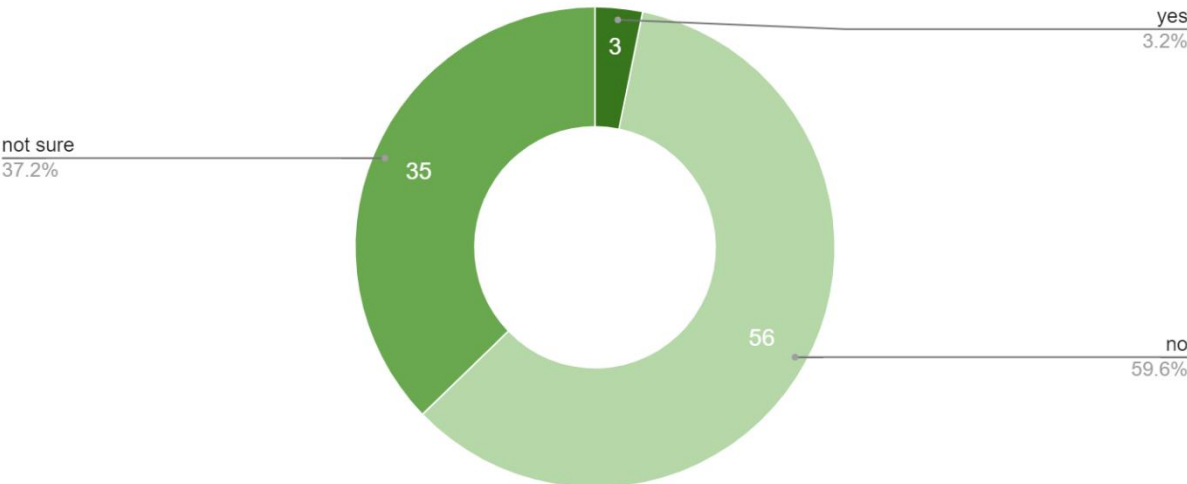
The first task in this part of the survey was to establish whether and to what extent there are organizational units within the LSG with terms of reference which include circular economy issues. This was done through the question reading: is there a body or organizational unit within your LSG which pursues issues related to circular economy? Having in mind that Serbia’s legislative framework does not place circular economy in the context of operations some level of authorities should perform, but that it is mentioned in some cases only in the form of guiding principles in the course of execution of competences, it was not realistic to expect that the respondents would reply to this question unanimously. This is why the answers offered included yes, no, and I am not certain. Beside this, it could be expected that due to their previous knowledge, some respondents could connect circular economy

with some other related areas and operations, such as operations within the waste management activity, which is why it is useful to analyze all received responses, but also perceive how towns and municipalities responded to this question.

The analysis of all responses resulted in the following percentages: out of 121 who responded to the question whether there was a body or organizational unit within the LSG pursuing issues in the area of circular economy, four respondents (3.3%) answered affirmatively, 68 respondents (56.2%) answered negatively, while 49 respondents said they were not certain (40.5%). The analysis of replies to this question by local self-government unit, 94 of them, resulted in similar percentages, as is shown on Graph 12. In this case, the result is even slightly less favourable, as only 3 (3.2%) LSGs replied affirmatively, 56 (59.6%) of them replied negatively, while 35 (37.2) of them were uncertain about this question. This situation clearly points to the necessity of lobbying for introduction of the term circular economy into the legal framework, not only as a principle, but as concrete competence within the scope of competences of local self-government. For this activity, it is necessary to precisely define which law needs to be amended and in which manner.

Does the municipality have a body or department dealing with CE issues?

(number of local self-governments: 94)



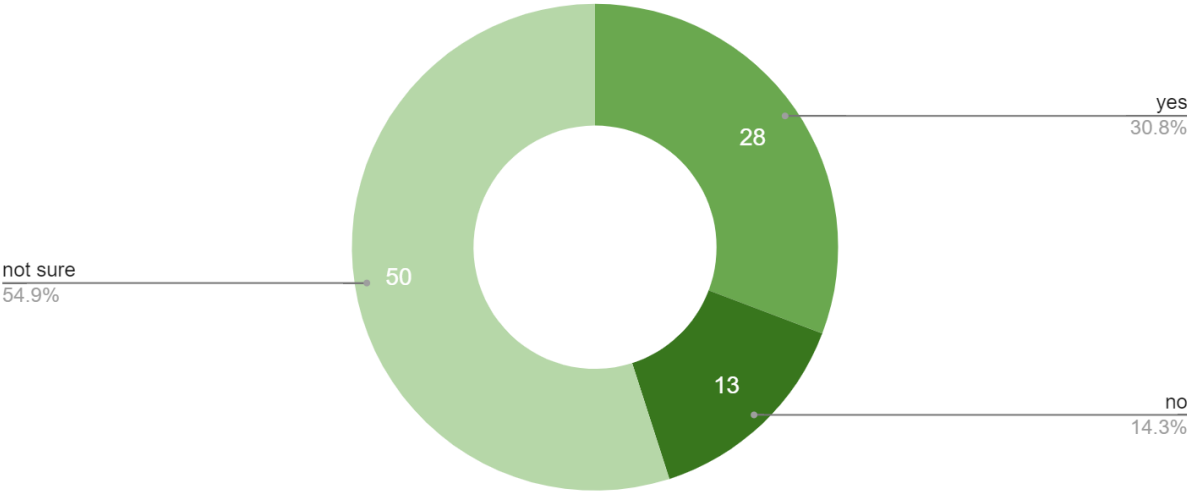
Graph 12. Replies from cities and municipalities on the existence of body or department dealing with CE issues

The previous question on existence of circular economy in organizational units of local self-government was extended with two additional questions. If they answered positively, participants were asked to state the title of such organizational unit and the number of executives dealing with issues in the area of circular economy. All the three cases with affirmative answers were large towns, two of which stated the environmental protection department with four executives as the organizational unit, while the third town stated its public utility company in charge of waste management and the sector for recycling and disposal of municipal waste within it, without the number of executives.

In further analysis of LSG capacities for dealing with issues related to circular economy, the respondents who answered negatively to the question about existence of a body or organizational unit pursuing circular economy issues within local administration or replied they were not certain were asked if they recognize a body or organizational unit which could deal with circular economy issues and were offered three replies, yes, no, and I am not certain. In the following step, those who answered affirmatively to this question were asked to stat such organizational unit within their local administration.

The analysis of this part of the questionnaire shows that out of 91 LSG which answered to this question 28 (30.8%) of them replied that they recognize the organizational unit within their administration which could pursue issues in the area of circular economy, 13 (14.3%) LSG stated they did not recognize such an organizational unit, while 50 (54.9%) of them were not certain about this question either. When asked, in addition, which organizational units this could be, the answers ranged from the department and section for environmental protection, agriculture, utility activities, or town planning, all the way to local development offices and sector for economy. When analyzing all answers, the result differ only slightly: 29.1% affirmative, 12.8% negative, and 58.1% uncertain.

Do you recognize a body or department within municipality that should be dealing with CE issues?
(91 out of 94 local self-governments)



Graph 13. Replies from towns and municipalities on a body or department that could or should be dealing with CE related issues

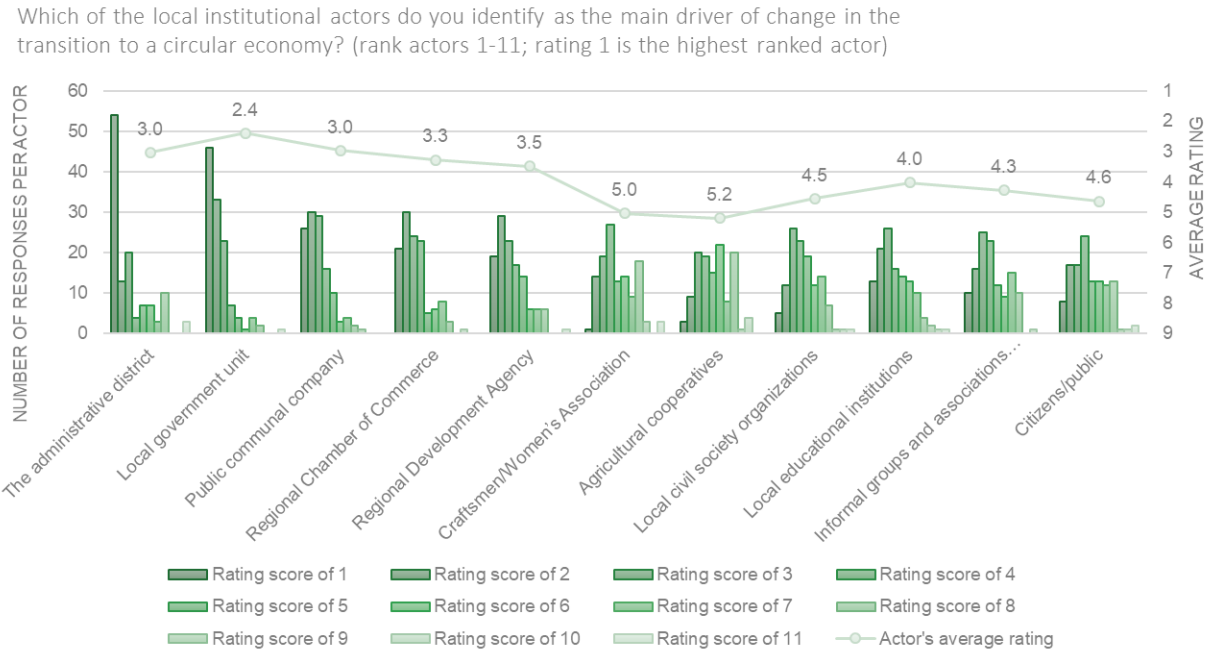
With the aim to gain a picture why most local representatives who took part in the survey could not perceive an organizational unit in charge of circular economy issues within their administration, and why they could not comprehend which body or organizational unit this could be, representatives of five LSGs were additionally interviewed. In the interviews it was confirmed that lack of clearly defined competences in the area of circular economy could be the main reason, but that activities aimed at awareness-raising and education of local officials and decision-makers are also necessary.

6.6.4 Local economic setting and institutional connectedness at local level

The research was also aimed at finding out the perception of representatives of towns and municipalities on the local economic setting and institutional connectedness in the area of circular economy. This part of the questionnaire comprised six questions and may be generally regarded as some kind of mapping of circular economy actors at local level.

The first question in this segment related to identification of local institutions and their importance and roles in initiation of changes in terms of transition to the circular type of economy. Eleven pre-defined answers were offered for this questions each of which was to be graded 1-11 depending on significance. The offered replies were: administrative district; local self-government unit; public utility company; regional chamber of commerce; regional development agency; associations of craftsmen/women’s association; farming cooperatives; local civil society organizations; local educational institutions; informal groups or associations (collectors); and citizens/public.

LSGs are the local actor and possible trigger of circular economy at local level which was marked with the highest average grade of 2.4. Following LSGs are administrative districts with the mean grade 3.0 as well as public utility companies. In opinion of the respondents, these three groups of actors are most important, that is, they may, depending on their position, have the greatest influence, both positive and negative, on the process of transition towards circular economy at local level. They are followed by regional chambers of commerce and regional development agencies which, by their significance as triggers of transition towards circular economy, received grades 3.3 and 3.5 respectively.



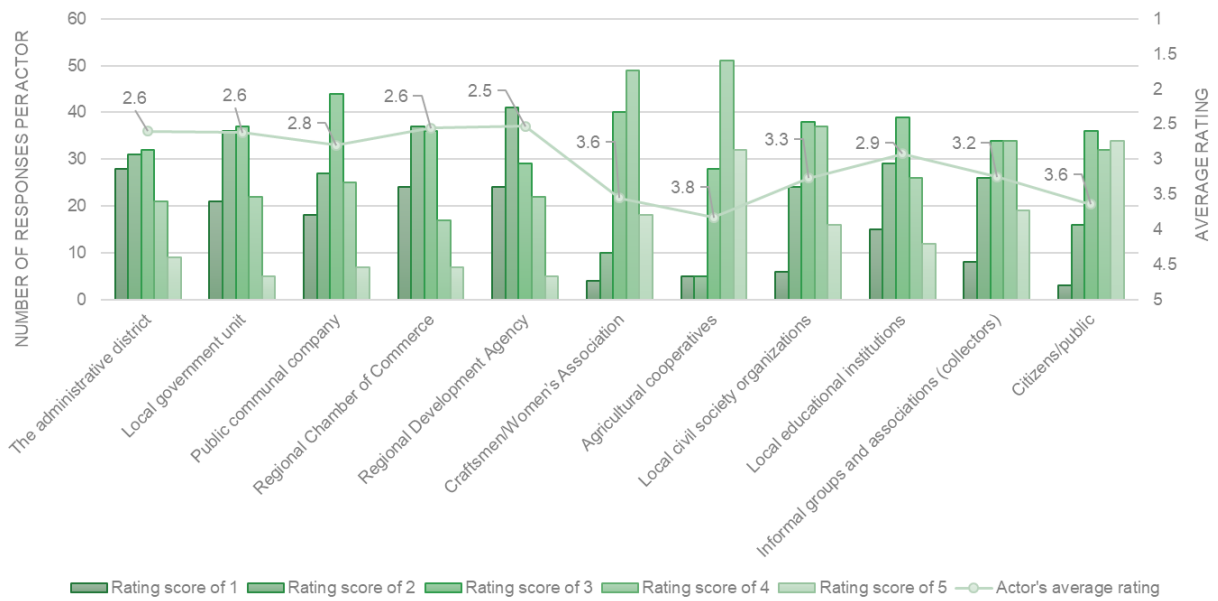
Graph 14. Local actors, drivers of change considering transition towards CE

The respondents assigned somewhat lesser importance to educational institutions at local level (mean grade 4.0), then informal collectors (4.3), local civil society organizations (4.5), and citizens (4.6). The slightest importance in terms of initiation of the process of circular economy was assigned to associations of craftsmen and women’s associations which were graded 5.0 and 5.3 respectively. The graphic presentation of the analysis of local actors as triggers of changes in terms of transition towards circular economy is given on Graph 14.

The next important question in this segment, which in combination with the previous one comprises mapping of local actors, relates to the level of awareness, i.e. interest in the process of transition towards circular economy on part of individual actors. The same 11 groups of actors were offered to respondents who were to grade them 1 - 5.

When it comes to awareness, the respondents assessed local actors in the following manner. Regional development agencies were graded with the best mean grade of 2.5. They are followed with regional chambers of commerce with grade 2.6, administrative districts, and LSGs. The next are public utility companies with 2.8 and local educational institutions with 2.9, informal collectors with 3.2, and local civil society organizations with 3.3. Association of craftsmen and women’s associations once again received the poorest grades in relation to awareness with 3.6, as well as farming cooperatives with the mean grade 3.8. The survey results in relation to this question are presented in graph 15.

In your opinion, what is the level of awareness of the circular economy with local institutional actors?
 (Rank the awareness level with a score of 1-5 for each actor; 1 is the highest level of knowledge and/or awareness)



Graph 15. Level of awareness of local actors related to CE

When survey results, i.e. mean grades of local actors, are entered in the mapping diagram, it results in a disposition such as the one presented in figure 7. The X axis of the diagram shows the strength of actors, i.e. their possibility to have impact on the process, while the Y axis presents the level of their awareness or interest in transition towards circular economy. On the diagram it is clearly visible that the three local actors in the top right quadrant of the diagram are administrative districts, LSGs, and public utility companies.

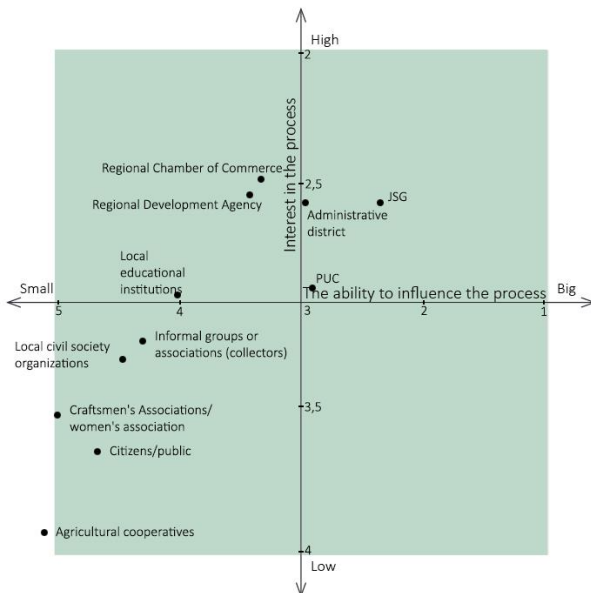


Figure 7. Mapping of local actors based on survey results

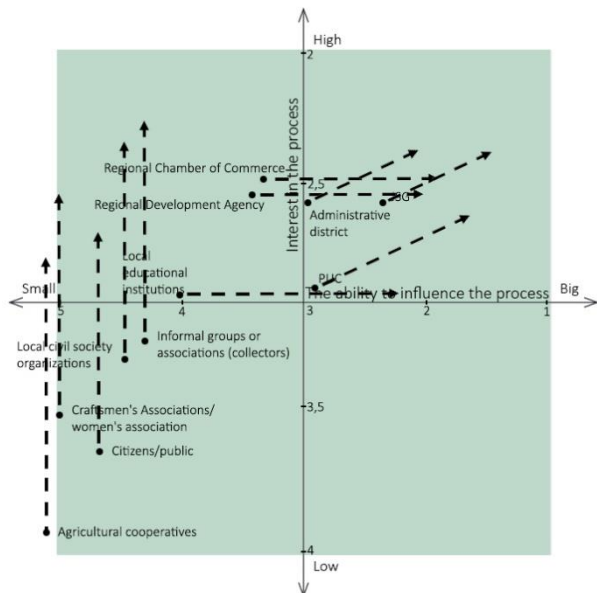


Figure 8. Position of local actors on a diagram and where they are ought to be placed

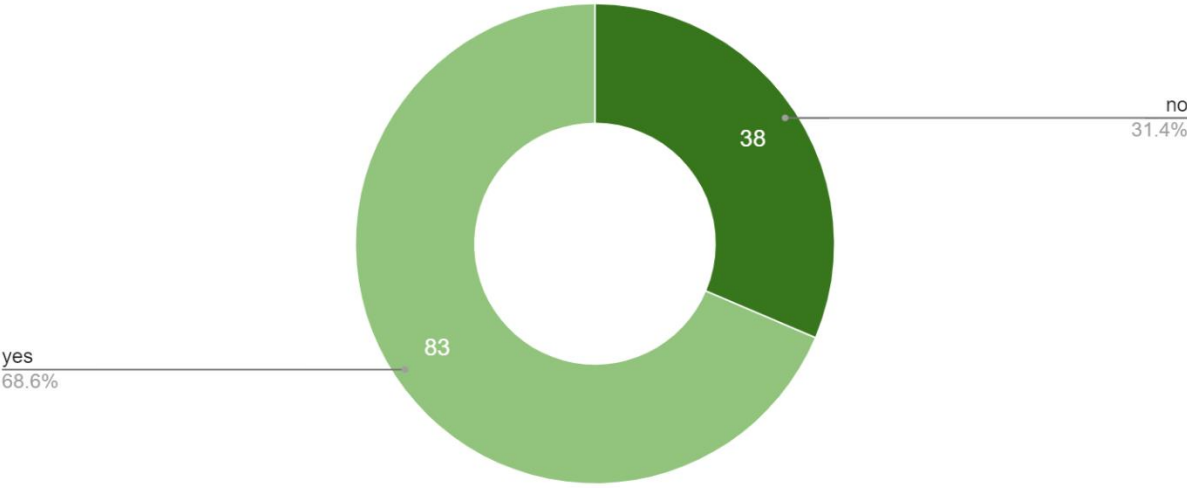
On the occasion of defining the strategy of work with actors and designing activities which are to accelerate the process of transition towards circular economy, this group should be given priority and it should be additionally strengthened through specific training for employees and permanent work on understanding of the issue and importance of the topic of circular economy.

In the top left quadrant of the diagram it is possible to see the actors whose awareness and interest are at a relatively high level, but whose impact on the process is limited. This group comprises: regional chambers of commerce, regional development agencies, and local educational institutions. These actors need to be included as much as possible, both in the process of planning and decision-making, as their current, but also future knowledge on circular economy may contribute to finding the best and most applicable approaches to transition towards the circular manner of business-making.

The bottom left quadrant contains actors whose power of influence to the process is weak, same as their interest. These are: informal collectors, civil society organizations, associations of craftsmen and women’s associations, citizens, and farming cooperatives. As the first step, it is necessary to work with these actors with the aim to raise their awareness and promote the idea of circular economy. As needed, in later stages, these actors may be also included in training, in accordance with activities they pursue in which implementation of is certain and appropriate. The bottom right quadrant of the diagram, which is empty, is reserved for actors with great power, but low level of interest. This may be interpreted that this quadrant is usually used to show institutions from higher levels of authority which were not mentioned in the replies.

One of the questions in this segment of the questionnaire related to the possibility of recognizing business entities, public companies, or entrepreneurs who could be important circular economy actors at local level. Respondents provided extensive answers to this question which, as a rule, comprised the public utility company for waste management, but also important business entities from the territory of the municipality in question, such as recyclers, companies which use large quantities of packaging, hotels, but also companies which may use secondary raw materials in their production processes.

Are there activities in your municipality that can be recognized as part of CE?
(number of received replies: 121)



Graph 16. Overview of local level activities that can be related to CE

Respondents were further asked to state or recognize certain activities, such as primary selection, recycling, use of renewable energy sources, composting, and biogas plants, which could be related to circular economy. Almost one third of replies to this question, i.e. 38 responses or 31.4% of all respondents, were negative. The remaining 83 answers or 68.6% were different and included separate waste collection, composting, separation of recyclables from municipal waste, biogas production within

wastewater treatment plants, biogas production from slaughterhouse waste, collection of paper and cardboard, etc. Such relatively high percentage of given activities may be ascribed to the suggestively defined question, but also to the level of awareness and familiarity with the local situation on part of LSG representatives who took part in the research.

The following question related to existence of entrepreneurs or companies in the operation of which it is possible to recognize elements of circular economy such as minimization of waste, re-use of materials, use of waste from other production activities, energy efficiency, green energy, etc. Answers to this question were rather divided. Almost a half of local representatives, 58 of them or 47.9%, stated business entities operating at the territory of their local self-government unit. The replies included SMEs performing activities in sectors such as biomass processing, recycling, production of products from different types of plastic, bio-fuel production, paper production, construction, food production, and green energy production. Participants in the research also stated their public utility companies, but also large companies such as Gorenje, H&M, and the cement plant. The remaining 63 respondents or 52.1% replied that they are not familiar with existence of such business entities at their territory or that they could not recognize them.

The following question was superstructure to the previous one and related to existence of local companies which have cooperative chains in which elements of circular economy, i.e. circulation of resources, could be recognized. The result of replies to this question was entirely different, as 102 respondents or 84.3% of all respondents in the research gave a negative answer, while 19 respondents or 15.7% gave a positive answer stating a company name.

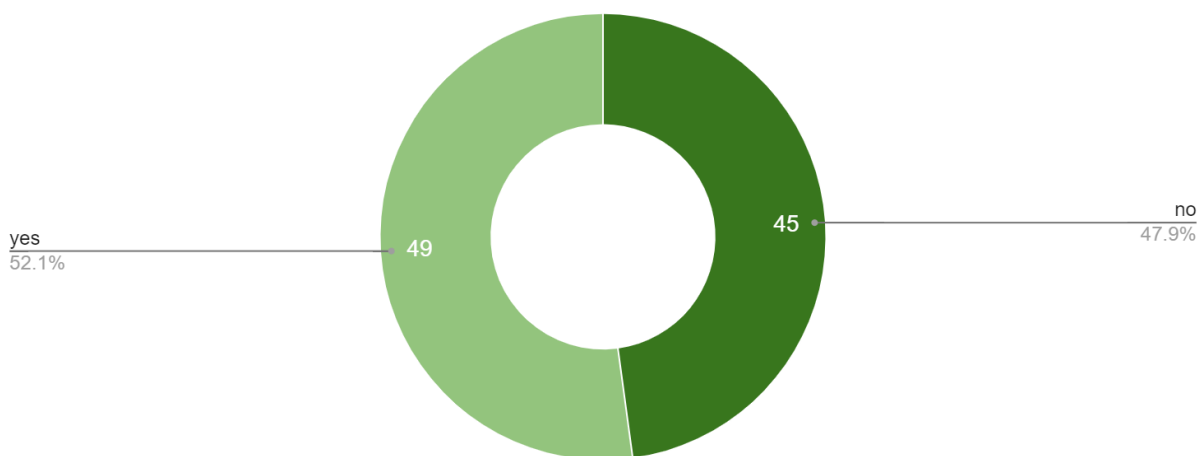
Such disposition of responses to the last three questions leads to the conclusion that it is necessary to improve communication between representatives of public bodies and companies with business entities at the territory of a local government unit, which is best done through regional chambers of commerce, regional development agencies, or other forms of associations of businessmen, so as to create preconditions for establishment of circular value chains. These contacts could be in the form of workshops where information on possible cooperation on establishment of circular business models could be exchanged.

6.6.5 Educational potential for development of circular economy at local level

Educational institutions in local settings usually have very good reputation and positive impact to ethics and patterns of behaviour in young population in local communities. This is why the intention of this section of the questionnaire was to get information and positions on secondary vocational schools, academies, faculties, and other educational institutions which may contribute to raising of awareness and local capacities for initiation and successful transition towards circular economy.

When asked to identify and state educational institutions within their LSGs which have elements of circular economy in their curricula, more than a half of the respondents, 70 of them (57.9%) replied affirmatively and stated a range of high schools, academies, and vocational schools, but also grammar schools and different faculties. Some participants also stated elementary schools and pre-school institutions in which the topics of environmental protection, recycling, energy efficiency, and similar are tackled in work which children. The number of respondents who replied negatively amounted to 51, or 42.1%. However, a more realistic picture on educational capacities may be gained through insight into the disposition of replies by local self-government unit. Out of the total of 94 LSG whose representatives took part in the survey, 49 of them (52.1%) identified educational institutions at their territories with elements of circular economy in their curricula, while 45 LSG interviewed (47.9%) replied that they could not recognize such institutions. These results are presented in Graph 17.

In your opinion which educational institutions within your municipality have in their curricula CE elements (vocational high schools, colleges, faculties)? Please state name of the institution(s).
(number of local self-governments: 94)



Graph 17. Overview of educational institutions on local level which in their programs have elements related to CE

When distribution of replies to this question is crossed with data on the number of population, it turns out that out of 45 LSG which responded negatively as many as 25 of them are small municipalities with fewer than 20,000 inhabitants, while 11 of them are municipalities with the population between 20,000 and 50,000 inhabitants; 5 of them are LSG with the population between 50,000 and 100,000 inhabitants, while 4 of them are big towns with more than 100,000 inhabitants. Even though it appears that replies to this question are somewhat subjective in nature, the conclusion which may be drawn is that representatives of local self-government are willing to cooperate with educational institutions in order to raise awareness and capacities in local communities. In these terms, towns and municipalities need to be supported through development of promotional materials or short lectures which could be offered to educational institutions at all levels as an optional subject. In relation to the issue, SCTM recommends closer cooperation of the sector covering education and the one with environmental protection in its terms of reference.

6.6.6 Support to and promotion of circular economy at local level

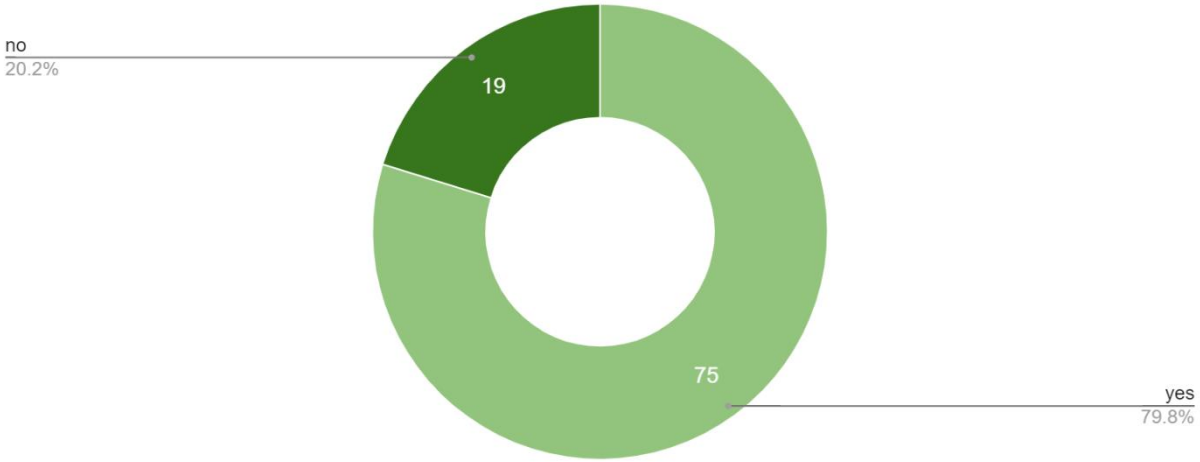
This part of the questionnaire comprises 12 questions with the aim to research and document the connection between local economic development policies and circular economy. This is also the reason why this part of the questionnaire is the largest. Some questions relate to incentive policies for local economic development, while the second set of questions they are connected to circular economy principles. As this part of the questionnaire is about local policies, the analysis of replies was performed against the total number of LSG which took part in the research.

The first question, which is quite unambiguous, relates to existence of direct support to local economic development. Most LSG representatives, as many as 75 out of 94, or 79.8% of the sample replied affirmatively to this question. Unlike them, 19 respondents, or 20.2% of the sample responded negatively. The distribution of replies is given in Graph 18.

The group of towns and municipalities which do not have incentives for local economic development mostly comprises small municipalities with fewer than 20,000 inhabitants, as many as 11 of them. When

it comes to distribution by size in other groups, there are no incentives in three municipalities with between 20,000 and 50,000 inhabitants, same as in three LSG from the group between 50,000 and 100,000 inhabitants and two towns with more than 100,000 inhabitants.

Does your municipality provide support to local economic development?
(number of local self-governments: 94)



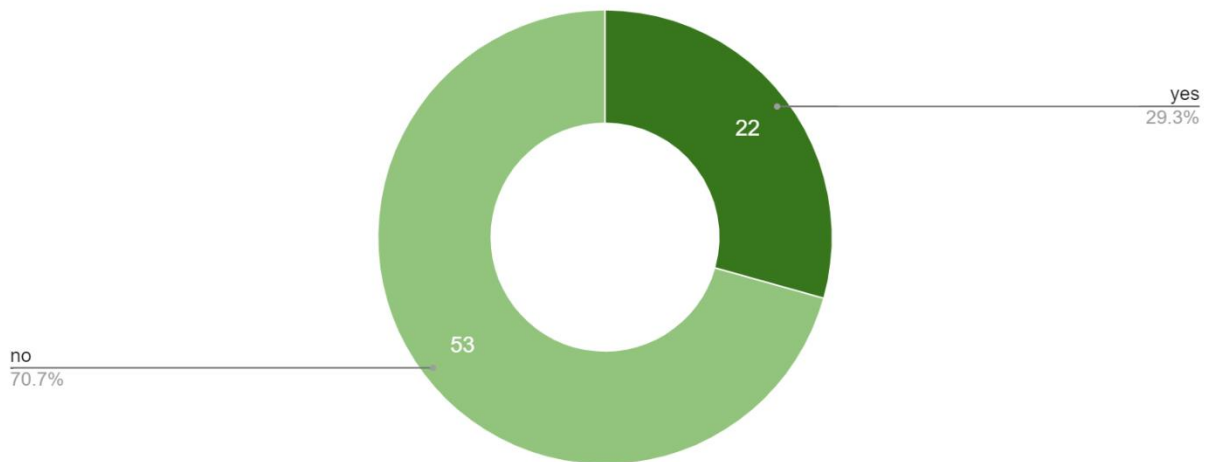
Graph 18. Overview of the existence of the local economic development support

The respondents were requested to state forms of support which is allocated to businesses in the form of incentives. Replies to this question include different forms of assistance to development of local economy which may be generally divided into several categories such as direct subsidies for the economy, investments in and development of business infrastructure, development of business zones, stimulation of employment and self-employment, attraction of investors, and stimulation of competitiveness. Programmes through which incentives are allocated at public competitions include development of entrepreneurship, innovation, tourism, agriculture, urban mobility, energy efficiency, and similar.

Beside the question on types of support, local representatives who replied affirmatively to the previous question (75 of them) were also asked whether criteria for allocation of support include circular economy principles and, in case the answer to this question was affirmative, which criteria these are. When asked whether circular economy principles are included in criteria for local economic development programmes, only 22 replies were affirmative, while 53 of them were negative.

Do criteria for the provision of support include CE principles?

(75 out of 94 local self-governments)



Graph 19. Overview of whether CE principles are considered as a criterion for local economic development programs

Further analysis of replies to the question about inclusion of circular economy principles in criteria for allocation of incentives for local economic development leads to interesting results. Out of 22 positive replies to this question, 14 respondent, or almost two-thirds of them come from small and medium-sized municipalities (fewer than 50,000 inhabitants), while only 8 come from large towns and municipalities. Still, when asked about particular criteria, a large number of replies is undefined and general. In the cases where the replies were concrete to an extent, the respondents, for instance, stated that the investment for which subsidy is to be granted need to contribute to reduction of quantities of waste and resources used, or that re-use of materials is a must, or increased energy efficiency and use of renewable energy sources.

All the surveyed LSGs were additionally asked to state whether they believe that in future it would be beneficial to include circular economy criteria for allocation of support for local economic development. Towns and municipalities which participated in the survey answered to this question affirmatively to a large extent, as it may be seen on Graph 20. Out of 94 LSGs surveyed, 82 of them (87.2%) replied affirmatively, while only 3 (3.2%) replied negatively. The remaining 9 LSGs (9.6%) replied they were not certain. Such distribution of responses is encouraging, and speaks about affirmative attitude of local self-government representatives towards promotion of circular economy principles.

Do you consider that including CE principles in the support criteria for local economic development would be beneficial?

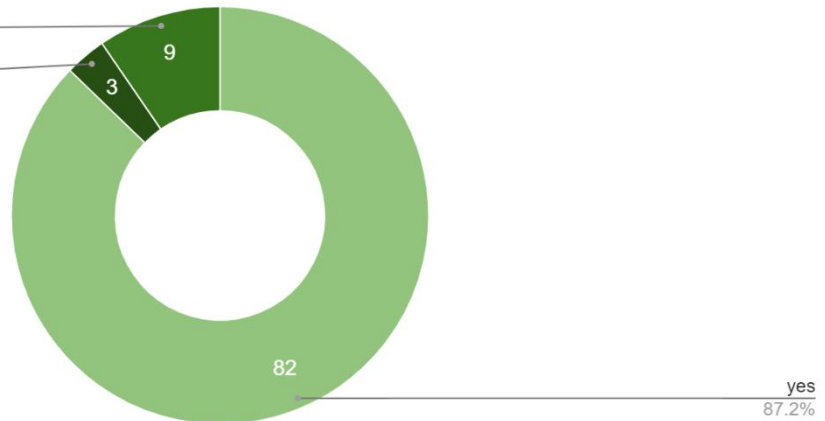
(number of local self-governments: 94)

not sure

9.6%

no

3.2%



Graph 20. Overview of whether it would be beneficial to include CE in criteria for local economic development support

The last claim is also corroborated by answers to the next question where respondents were asked whether they believe that local self-government should promote circular economy. A vast majority of the surveyed gave an affirmative answer to this question. Out of the total of 121 respondents, 118 or 97.5% of them replied that they believe local self-government should promote circular economy. Only 2.5% or 3 respondents replied to this question negatively. The distribution of replies is presented on Graph 21.

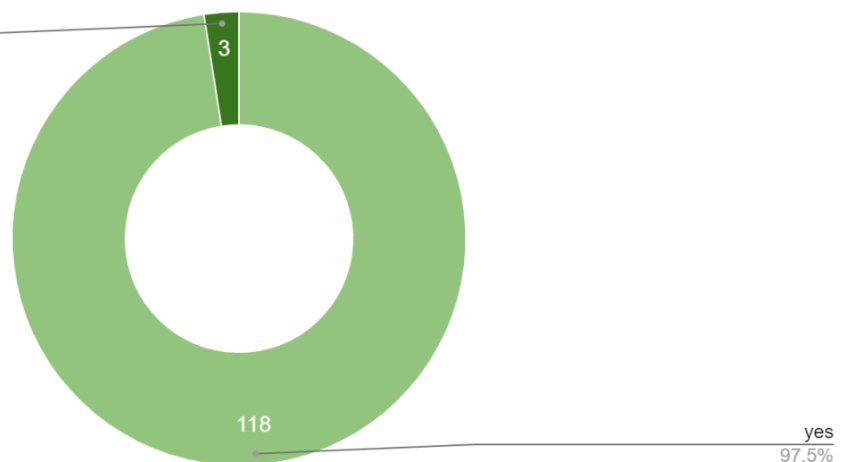
Absolutely the same percentage is obtained when analyzing the replies by town and municipality. Out of 94 LSGs which participated in the survey, only 2 replied negatively. As it was already noted, such attitudes give rise to considering creation of development programmes for circular economy at local level to include promotional, but also awareness-raising capacities of all actors at local level. This position and proposal are additionally confirmed by replies to the following question. The respondents were asked to state the manner which would be most efficient for promotion of circular economy at local level. The replies were mainly aimed at education, awareness-raising, media promotion, enforcement of legal provisions, development of incentive measures, and such.

Do you consider that local self-government should promote CE concept?

(number of received replies: 121)

no

2.5%



Graph 21. Overview of whether local self-governments should promote CE

In the last set of questions on the connection between local economic development and circular economy, the respondents were requested to state their position on what would be most useful to do so that circular economy could become an essential part of local business models. The replies may be divided in several groups.

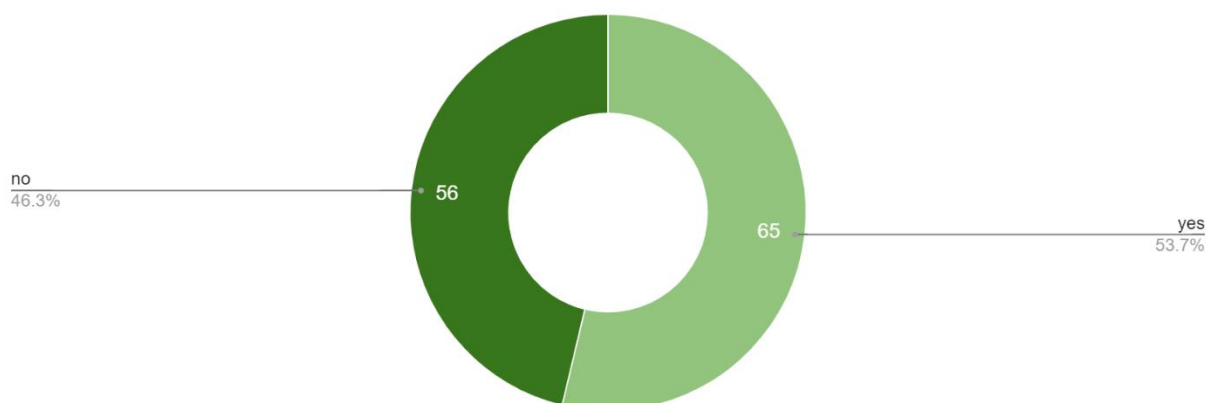
The first group of replies includes those relating to promotion of the legal framework and regulation of circular economy through appropriate legal solutions and their consistent enforcement at local level. The second group of replies treats the issue of education of all most important actors, including citizens, on circular economy. The next group of replies may be grouped within awareness-raising in decision-makers at local level. One group of replies is very interesting and includes suggestions which are not always high on the agenda, but which might be of crucial importance for success of transition towards circular economy at local level. This is about networking of actors, i.e. initiation of cooperation between business entities in private and public sector. Another group of suggestions relates to stimulation of citizens to do primary separation, but also creation of local systems to make this kind of behaviour worthwhile. Further suggestions include incentives for use of renewable energy sources and promotion of energy efficiency. Finally, there are suggestions which speak in favour of creation and introduction of incentives for businesses so as to facilitate its faster adoption of and transition to new business models which take into account circular economy principles.

6.6.7 The role of women and other social groups in promotion of circular economy at local level

The last segment of the questionnaire was to emphasize the special and important role of women and informal groups in promotion and triggering of circular economy at local level and provide a picture of attitudes on this topic on part of local representatives.

Within the first out of four questions, the respondents were requested to state their positions on whether they recognize the role of women as a separate category interested in promotion and development of circular economy at local level. Out of 121 persons who participated in the research, 65 or 53.7% of them replied affirmatively to this question, while 56 or 46.3% replied negatively, as is shown on Graph 22.

Do you recognize (direct) role of women (as specifically interested category) in the promotion and development of CE on local level?
(number of received replies: 121)

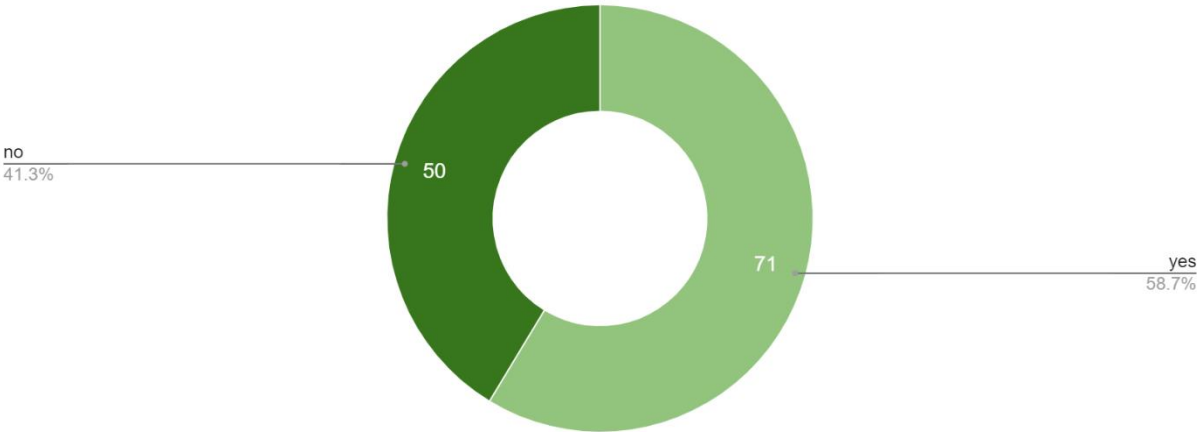


Graph 22. Overview of the role of women in promoting CE on local level

In order to gain a more precise picture of the role of women in promotion of circular economy, participants in the survey were asked to state the role or roles they had on mind when replying affirmatively to the previous question. The replies provided by respondents were somewhat general and indefinite; however, there are also very concrete ones emphasizing that in certain LSGs there are a lot of women who occupy top positions, thus in these terms they must have great impact on strategic deliberation, planning, and deciding at local level. Other replies emphasized the role of women as an important factor in household management, thus their impact on activities in the area of waste management and use of products and services which may be a part of circular supply chains. Work in public institutions, especially educational and pre-school ones where foundations for upbringing of future generations are laid, was also an important segment where women are recognized as important actors. A vast majority of respondents emphasized the importance of awareness-raising and work on education of women as a group important for promotion and faster development of circular economy at local level.

This segment, but the whole questionnaire as well, ends with two questions on perception of the role of different social groups in promotion and development of circular economy at local level. When asked whether they recognize the roles of different social groups, 71 (58.7%) respondents replied affirmatively while 50 (41.3%) replied negatively, as is shown on Graph.

Do you recognize the role of different social groups in the promotion and development of CE on local level?
(number of received replies: 121)



Graph 23. Overview of the role of different social groups in promotion of CE

Local representatives who replied affirmatively to the previous question were further asked to define which groups they meant and what their role is. Unlike the question relating to women, replies in this case were considerably more concrete, but also rather uniform. The respondents mostly recognized and stated environmental associations, associations of entrepreneurs, farming cooperatives, Roma and informal collectors and their associations, citizen associations aimed at environmental protection, and the civil sector in general as social groups which may have an important role in promotion of circular economy. When it comes to the role of these groups, it always relates to awareness-raising and promotion of the concept and principles of circular economy, as well as education of citizens, business entities, decision-makers, and other actors at local level.

PART 3
RESEARCH FINDINGS,
RECOMMENDATIONS FOR
PRACTICAL POLICIES, AND
CONCLUSIONS

7. The most important findings of the research analysis

Within this chapter, all the most important findings reached in the analysis of answers in the survey questionnaire on positions and capacities of representatives of LSGs and public utility companies are presented in one place. As many as 121 representatives of 94 towns and municipalities in Serbia took part in the research.

- The percentage of respondents who stated that they are more or less familiar with the circular economy concept is quite high and amounts to 71.1%, which is a good starting point for implementation of activities in this area at local level. This percentage is even higher in the group of towns with more than 100,000 inhabitants and amounts to 81.8%.
- Replies to individual questions from the survey indicate that representatives of local authorities understand the essence of circular economy well, as a tool for achievement of sustainable development goals and one of basic prerequisites for preservation of the environment and rational use of resources.
- When it comes to the sector in which circular economy principles could be firstly and easily accepted in our towns and municipalities and in places where they would have to be implemented, local representatives recognized the sector of packaging production and packaging waste as such.
- Respondents largely recognized the leading role of state institutions, as well as LSGs in the process of transition of economic activities from linear towards circular economy, but the need for further communication and inclusion of business entities, citizens, and civil society in this process as well.
- The (low) level of awareness and lack or absence of financial instruments for circular economy projects are the most significant barriers at local level. In these terms, and in view of great responsibility which decision-makers at local level have, it is necessary to strengthen educational and awareness-raising activities.
- The process of transition towards circular economy will not be likely to succeed unless aware citizens participate in it. This is why education and positive promotional campaigns aimed at citizens are an exceptionally important segment of activities which need to be implemented at local level.
- When it comes to the strategic framework for circular economy at local level, only one third of LSGs in Serbia have a form of circular economy principles incorporated in their strategic documents.
- Having in mind that there is no legal prerequisite for passing of local circular economy plans, as well as the fact that municipalities will have the obligation of renewing their local waste management plans in the following two years, this time, in the light of the expected new National waste management plan, it appears that it is the right moment that activities aimed at promotion of circular economy are directed towards LSGs. Beside this, other local strategic documents are also suitable for promotion of circular economy principles. All of this becomes increasingly important taking into account provisions of the Law on the planning system and obligation of passing an umbrella development plan of towns and municipalities.
- In terms of capacities at local level, it is evident that very few LSG in Serbia, only about 3% of them, have organizational units within their administration which, directly or indirectly, cover the issue of circular economy, i.e. recognize the need to be involved in operations in this area.

- Such a situation clearly points to the necessity of lobbying for introduction of the term of circular economy into the legal framework, not only as a principle, but as a concrete competence in the scope of competences of LSGs. For such an activity, it is necessary to determine which law or laws need to be amended and how.
- Activities aimed at local actors need to be in accordance with their positions, i.e. power of influence and level of interest in the process of transition towards circular economy.
- There is willingness on part of representatives of LSGs to cooperate with educational institutions in order to upgrade awareness on and capacities for circular economy in local communities. In these terms, towns and municipalities need to be supported through development of promotional materials or short lectures which could be offered to various educational institutions at local level as an optional subject. In relation to this issue, SCTM recommends promotion of cooperation between the sector which covers education and the sector which has environmental protection in its terms of reference.
- According to replies to several questions, including those relating to inclusion of circular economy principles in criteria for allocation of LED subsidies and circular economy promotion by the local self-government unit, it may be concluded that general attitude of LSGs towards this issue is positive, and that it is necessary to create development programmes for circular economy at local level to include promotional, but also capacity upgrading activities for all actors at local level.
- The approach which might be of crucial importance for success of transition towards circular economy at local level is networking of actors, i.e. initiation of cooperation among business entities in private and public sector.
- The role of women is recognized as important for promotion and development of circular economy, having in mind that a large number of women occupy managerial positions at local level, but also because of their role in households and process of child upbringing.
- Women are predominant employees in local administration, especially in sectors dealing with environmental protection or local economic development. This is why particular attention need to be paid to education of women as a separate group of actors at local level.
- Different social groups may play a very important role in the process of transition towards circular economy at local level, first of all environmental associations, associations of businessmen, farming cooperatives, Roma, informal collectors and their associations, civic organizations for environmental protection, and civil sector as a whole. When it comes to the role of these groups, it always relates to awareness-raising and promotion of the concept and principles of circular economy, as well as education of citizens, legal entities, decision-makers, and other actors at local level.

8. Recommendations for practical policies at local level

Based on the desktop analysis and results and findings of the research, it is possible to formulate a number of positions which, upon check and harmonization within working and political bodies of SCTM,

are to grow into a practical policy for promotion and faster adoption of circular economy principles at local level. Proposed positions are given in the text below.

- Taking into account that as of 2020 LSGs will initiate composition and adoption of new local and regional waste management plans, with expectations attached to adoption of the National plan and its harmonization with European Union goals, it is the right moment to open dialogue and initiate exchange of ideas on importance and benefits of orientation towards circular economy at local level, so that its principles and goals could find their place in plans which towns and municipalities will be passing in the following period.
- As the Law on planning system of the Republic of Serbia stipulates that as of 2021 LSGs are to adopt development programmes as umbrella strategic documents, it is necessary to work on promotion of circular economy so that it could find its place in these documents as one of the basic principles on which local development should be based. Beside this, it is also necessary to file this initiative to state bodies, first of all to the Republic Secretariat for public policies, which is in charge of development of the Development plan of the Republic of Serbia, so that LSGs could incorporate circular economy principles in their plans in accordance with the principle of consistency and compliance.
- Having in mind that there is no legal base, thus no obligation of passing local circular economy plans, at this moment not a single LSG has this type of strategic document. Such a situation clearly points to the necessity of lobbying for inclusion of the term circular economy into the legal framework, not only as a principle, but as concrete competence within the scope of competences of local self-government. For this activity, it is necessary to determine the law or laws which will be modified and in which manner.
- On the other hand, in the following two years towns and municipalities will have the obligation of renewing their waste management plans, this time in relation to the expected new National waste management plan, but also development plans in line with the Law on planning system of the Republic of Serbia. Taking into account that other local strategic documents are also suitable for promotion of circular economy principles, it appears that it is the right moment to aim activities intended for promotion of circular economy towards LSGs.
- Same as in some other spheres of social activity in which LSGs do not have clearly expressed and defined competence but in which they have promotion and support mechanisms, when it comes to circular economy LSGs need to work on development of platforms for networking and exchange among local actors, because passing of decisions which maximize efforts in the direction of introduction of circular economy is only possible through networking, cooperation and perception of circular policies from the standpoint of businesses, citizens, and the public sector.
- In order for citizens to have an affirmative attitude towards circular economy, LSGs, in cooperation with other stakeholders from the economy and civil society need to create and implement positive campaigns aimed at raising of citizen awareness on importance, advantages, and benefits of circular economy for them as individual and the local community as a whole.
- LSGs willing to support transition towards circular economy and its development in the local economic setting need to ascribe equal importance to incentives for business entities and citizens. Incentives for businesses may include facilitation of administrative procedures and other types of financial and nonfinancial assistance based on local strategic documents, while incentives for citizens

may include reduced bills for utility services or some other types of benefits for rational behaviour in accordance with circular economy principles.

- Public procurements, based on circular economy principles, are one of the most obvious and simplest manners in which the public sector, including LSGs, may promote and initiate circular economy at local level. This is the reason why the European Union within its circular package introduced green public procurements as one of basic mechanisms for introduction of circular economy into main economic trends.

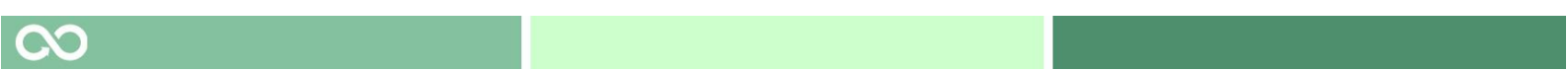
9. Final considerations and conclusions

At EU level, but also globally, circular economy is identified as one of key mechanisms for separation of economic growth and increasing human well-being from excessive consumption of nonrenewable natural resources. It has been recognized as an alternative to the current linear approach to economic development which may offer prospects of long-term sustainability for future generations and provide an opportunity for future of humanity and planet Earth in general. This is why it is of exceptional importance that all social structures at all levels are included in promotion and creation of preconditions for transition towards circular economy as the dominant economic model of near future.

Even though it appears that the issue of circular economy is in the domain of creators of economic trends at national level on the one hand and in the domain of business policies of business entities on the other, it seems that local settings and local development strategies, thus LSGs and other local actors as well, doubtless have an important role in and importance for successful transformation of local business models into those based on circular principles. This claim is corroborated by numerous examples of LSGs from the EU which in some cases are even forerunners in passing strategies, launching initiatives, and creating preconditions for more extensive and faster growth of economic activities based on circular economy principles.

By establishing the Group for circular and green economy within the Ministry for environmental protection and separate inter-sector green body for circular economy, Serbia has made the first steps towards introduction of circular principles in main strategic and political trends at national level. On the other hand, with support of European community for knowledge and innovation Climate-KIC and GIZ, German organization for international cooperation, Serbian Chamber of commerce, one of important actors in economic sphere, actively conducts training of national actors and performs promotion of circular economy and its models aimed at business entities in our country.

When it comes to local level, Standing Conference of Towns and Municipalities has been recognized as the institution with capacities and mechanisms for fast and efficient communication with towns and municipalities through which it is possible to get feedback on issues of importance for creation of preconditions and development of policies for transition towards the circular model at local level. On the other hand, by articulation of positions of LSGs, Standing Conference has a possibility to develop a base of arguments for lobbying and exertion of influence on national policies and creators of the regulatory framework. This is the reason why a research of awareness of circular economy, its principles, limitations, drivers, key actors, and scopes at local level was conducted among local representatives so as to formulate policies, positions, and messages which need to be addressed to decision-makers, both at national and local level, with the aim to facilitate faster and more comprehensive steering of local economic development towards circular economy.



Literature

- <https://www.footprintnetwork.org/>
- Kirchherr, Julian & Reike, Denise & Hekkert, M.P.. (2017). Conceptualizing the Circular Economy: An Analysis of 114 Definitions. SSRN Electronic Journal. 127. 10.2139/ssrn.3037579
- Commission Communication COM(2015)614 final "Closing the loop - An EU action plan for the Circular Economy"
- Growth Within: A Circular Economy Vision for A Competitive Europe, the Ellen MacArthur Foundation, the McKinsey Center for Business and Environment, Stiftungsfonds für Umweltökonomie und Nachhaltigkeit, June 2015
- Impacts of circular economy policies on the labour market, Cambridge Econometrics, Trinomics, and ICF, May 2018
- World Employment and Social Outlook 2018: Greening with jobs, International Labour Office, Geneva: ILO, 2018
- Geissdoerfer, M., Savaget, P., Bocken, N., & Hultink, E. (2017). The Circular Economy – A new sustainability paradigm?. Journal of Cleaner Production, 143 (1), 757-768. <https://doi.org/10.1016/j.jclepro.2016.12.048>
- https://en.wikipedia.org/wiki/Circular_economy
- Suárez Eiroa, Brais & Fernández, Emilio & Martínez, Gonzalo & Soto-Oñate, David. (2019). Operational principles of Circular Economy for Sustainable Development: Linking theory and practice. Journal of Cleaner Production. 214. 952-961. 10.1016/j.jclepro.2018.12.271.
- <https://www.ellenmacarthurfoundation.org/circular-economy/concept>
- Mapping the benefits of a circular economy, McKinsey Quarterly, June 2017
- <https://www.ellenmacarthurfoundation.org/circular-economy/concept>
- Closing the loop - An EU action plan for the Circular Economy COM/2015/06
- COM (2019) 190 final
- Sustainable Development Goals (SDGs)
- Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of eco-design requirements for energy-related products
- European Parliament, Resolution of 31 May 2018 on implementation of the Ecodesign Directive, 2017/2087(INI)
- <https://sustainabledevelopment.un.org/sdgs>
- <http://www.r2piproject.eu/>
- Zakon o lokalnoj samoupravi (Sl. glasnik RS, br. 129/2007, 83/2014 - dr. zakon, 101/2016 - dr. zakon i 47/2018)
- Zakon o planskom sistemu Republike Srbije (Law on the planning system of the Republic of Serbia) (Official Gazette of RS, No. 30/2018)
- Strategija upravljanja otpadom za period 2010-2019. godine (Sl. glasnik RS, br. 29/2010)
- Zakon o upravljanju otpadom (Law on waste management)(Official Gazette of RS, No. 36/2009, 88/2010, 14/2016, and 95/2018 -oth. law)
- Zakon o ambalaži I ambalažnom otpadu (Law on ackaging and packaging waste) (Official Gazette of RS, No. 36/2009, and 95/2018 - oth. law)
- Uredba o utvrđivanju Plana smanjenja ambalažnog otpada za period od 2015. do 2019. godine (Decree on definition of the Packaging waste reduction programme for the period from 2015 to 2019) (Official Gazette of RS, No. 144/2014)
- Odluka o utvrđivanju Nacionalnog programa zaštite životne (Decision on definition of the National environmental protection programme) (Official Gazette of RS, No. 12/2010)
- Strategija održivog korišćenja prirodnih resursa i dobara (Natural resource and asset sustainable use strategy)(Official Gazette of RS, No. 33/2012)

- Strategiju uvoženja čistije proizvodnje u Republici Srbiji (Serbian Cleaner production import strategy) (Official Gazette of RS, No. 17/2009)
- Strategija podrške razvoja malih i srednjih preduzeća, preduzetništva i konkurentnosti za period od 2015. do 2020. godine (SME, entrepreneurship, and competitiveness development strategy for the period from 2015 to 2020) (Official Gazette of RS, No. 35/2015)
- Strategija i politika razvoja industrije Republike Srbije od 2011. do 2020. godine (Serbian industrial development policy and strategy from 2011 to 2020)(Official Gazette of RS, No. 55/2011)
- Zakon o kontroli državne pomoći (Law on control of state aid) (Official Gazette of RS, No. 51/2009)
- Zakon o ulaganjima (Law on investments) (Official Gazette of RS, No. 89/2015 and 95/2018)
- Zakon o zaštiti životne sredine (Law on environmental protection) (Official Gazette of RS, No. 135/2004, 36/2009, 36/2009 - oth. law, 72/2009 - oth. law, 43/2011 – CC Decision, 14/2016, 76/2018, 95/2018 – oth. law and 95/2018 - oth. law)
- Zakon o efikasnom korišćenju energije (Law on efficient use of energy) (Official Gazette of RS, No. 25/2013)
- Zakon o regionalnom razvoju (Law on regional development) (Official Gazette of RS, No. 51/2009, 30/2010 i 89/2015 - dr. zakon)
- Strategija razvoja energetike Republike Srbije do 2025. godine sa projekcijom do 2030. godine (Serbian energy development strategy by 2025 with a projection by 2030) (Official Gazette of RS, No. 101/2015)
- Strategija poljoprivrede i ruralnog razvoja republike Srbije za period 2014-2024. godine (Serbian agriculture and rural development strategy for the period 2014-2024) (Official Gazette of RS, No. 85/2014)
- Cities in the Circular Economy: An Initial Exploration, Ellen MacArthur Foundation, 2017
- Zakon o lokalnoj samoupravi (Law on local self-government) (Official Gazette of RS, No. 129/2007, 83/2014 - oth. law, 101/2016 - oth. law, and 47/2018)
- M. Žikić, D. Mak, Analiza efekata različitih institucionalnih oblika za sprovođenje nadležnosti u oblasti lokalnog ekonomskog razvoja, SKGO 2010.
- City Governments and their Role in Enabling a Circular Economy Transition - An Overview of Urban Policy Levers, Ellen Macarthur Foundation, March 2019
- Cooperation Management for Practitioners - Managing Social Changes with Capacity Works, GIZ GmbH, 2015
- <https://circulareconomy.europa.eu/platform/en>
- <https://www.climate-kic.org/wp-content/uploads/sites/15/2018/12/Municipality-led-circular-economy-case-studies-compressed-ilovepdf-compressed.pdf>
- <http://www.acrplus.org/en/>
- <https://www.recita.org/>
- <https://wcycle.com/>
- Buying green! A handbook on green public procurement, 3rd Edition, European Commission, 2016
- Public procurement for a circular economy - good practice and guidance, European Commission, 2017
- Zakonu o teritorijalnoj organizaciji Republike Srbije (Law on territorial organization of the Republic fo Serbia) (Official Gazette of RS, No. 129/2007, 18/2016, and 47/2018)



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