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ROADMAP
for circular economy in Serbia

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0 EXECUTIVE SUMMARY

Circular economy stands for a renewable industrial economy that offers a changed concept of production and consumption in terms of design, use of resources and approach to waste generation.

In circular economy, there is no waste as a concept: there are only raw materials that can be recycled for identical or different production processes. In addition, circular economy prioritizes renewable energy sources, efficiently uses energy, and encourages innovative technologies, green public procurement and replacement of hazardous chemicals with the less dangerous ones. In this way, the habits of consumers are also inevitably changing.

The Roadmap for Circular Economy in Serbia is a process aiming to gather, promote and connect the identified stakeholders whose knowledge, innovation and creativity can contribute to a faster transition to circular economy. **This document is a guide** to circular economy transition models that equally focus on profit, environmental protection and preservation of resources. **Economic, social and environmental dimensions are given equal importance.**

The goal of the Roadmap is to encourage manufacturing with the use of circular business models, to motivate the industry to create new jobs, and to improve doing business by finding innovative and sustainable solutions for the market. The intention of this document is t**o inspire the society to consider systemic changes in mindset, culture and attitude toward resources**, as well as to encourage the political decision-makers **to commit to altering the public policies and discourse** in the context of circular economy.

This is the initial document aiming to start the dialogue between decision-makers, industry representatives, academia and civil society. I**ts purpose is to delineate the steps and timeline for the future transition**, with the use of digital tools.

The EU has adopted a set of documents that provide guidelines to member states on how to transition from linear to circular economy. The most recent documents are the **Green Deal and the Circular Economy Action Plan**. Given that the Republic of Serbia is in the accession process to the EU, we will be harmonizing our Roadmap with the EU recommendations. Therefore, in the upcoming period, we will undertake a range of activities to this purpose, including developing a Circular Economy Roadmap 2.0.

1 INTRODUCTION

The Circular Economy Roadmap of Serbia results from the joint efforts of the members of the Special Working Group for Circular Economy, formed within the Ministry of Environmental Protection in April 2019. **The Roadmap includes recommendations on how to overcome the restraints that private companies in Serbia perceive on their journey toward circular economy in their respective sectors**, collected during the consultations with representatives of the private sector that were held between September 2018 and June 2019. It also includes recommendations from thematic reports drafted within the project Circular Economy Platform for Sustainable Development in Serbia.

This is the first, initial document. It is to serve as the foundation for the relevant stakeholders – including decision-makers, administration, investors, academia, innovators, designers, consumers, citizens and experts, each from their own domain – so that they can undertake the activities that will achieve systemic changes. In this way, these activities will be based on responsible resource management, contributing to the transition from linear to circular economy in the Republic of Serbia. This **document streamlines the process**, allowing the involvement of all stakeholders in an open dialogue, so that they can jointly create a solution for an efficient and quick transition.

On December 11th 2019, the European Commission introduced the European Green Deal[1] as one of the priorities in its work for the next five years. The Green Deal sets even more ambitious goals to meet the Paris Agreement: the reduction of CO_2 emissions by 50% before 2030, with the aim to reach 55% by 2050. The idea is that Europe should become the first climate-neutral continent and the global leader in circular economy and clean technologies. The potential economic gain from the transition to circular economy by 2030 is assessed at around 1.8 billion EUR.

The circular economy model is designed in such a way that the use of natural resources and energy is minimized, while also minimizing waste generation, pollution and other negative impacts on the environment. Circular economy is crucial for sustainable manufacturing, because it prevents environmental degradation, reduces pollution, and secures production processes with the use of clean technologies. The circular economy business models allow the industry to improve and harmonize its production processes with the market needs and new global economic trends. The circular economy business models do not generate "waste" in the production process. There are only "raw materials" that are returned to production by means of circular design and cleaner technological processes.

The circular economy aims to renew the natural resources, to keep the raw materials in use, and to expand the product lifespan by applying the appropriate design that turns expired products into raw materials instead of waste, so that they do not contribute to pollution.

[1] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

2 GLOBAL CHALLENGES AND CIRCULAR ECONOMY

2.1. SUSTAINABLE USE OF NATURAL RESOURCES – THE PATHWAY TOWARDS CIRCULARITY

The linear manufacturing method is based on the model TAKE – PRODUCE – DISCARD. The linear economy model was mostly motivated by achieving profit regardless of the negative impact on the environment and the natural resources. In economies based on the linear model, only a part of materials are recycled, while the products that are not recycled (mostly due to their design and material composition) end up in landfills.

Image 1:
Linear economy

Circular economy is a regenerative economic model that has a positive impact on all types of capital: financial, human, social and natural. It aims to regenerate the devastated natural resources, to keep raw materials in use, and to extend the product lifespan by applying the appropriate design that turns expired products into raw materials instead of waste, so that they do not contribute to pollution.

The current global trends aim to replace the deeply rooted linear economy and waste management with circular economy. Circular economy also supports the protection of human rights, by providing sustainable development, global security of natural resources, climate change action, energy security, and enough food for all. In addition, it reduces inequalities, offers more transparent public finances, increases the social security of citizens, and preserves health, clean environment and the future generations' right on resources.

Circular economy should not be confused with waste management hierarchy. Namely, waste management hierarchy was created in linear economy as a measure to reduce the generated amounts of waste and retrieve some materials back to production through recycling. Circular economy is above the waste management process, because its starting point is a brand new manner of thinking about the use of resources – the 6-R Process.

Image 2:
The 6-R Process of circular economy

Digitalisation and the use of technology can facilitate the introduction of the circular business model. Circular economy offers immense potential. The participation of different countries provides the opportunity for a global systemic transformation, regardless of the economic power of a particular society.

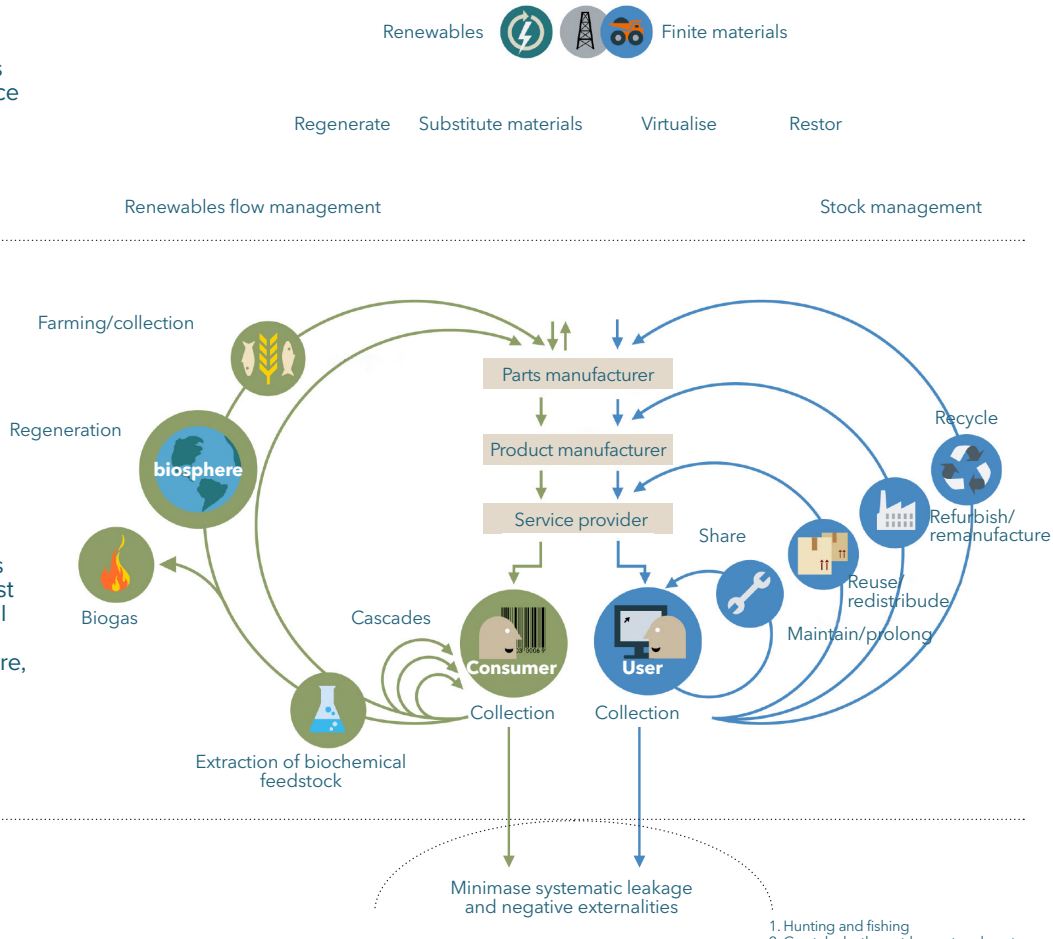
The holistic advantages of circular economy are shown in the "butterfly" diagram of the Ellen MacArthur Foundation.

Image 3:
Circular economy represented by the "butterfly" diagram of the Ellen MacArthur Foundation[2]

1. PRINCIPLE
Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows.
ReSOLVE levers: regenerate, virtualise, exchange.

2. PRINCIPLE
Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles.
ReSOLVE levers: regenerate, share, optimise, loop.

3. PRINCIPLE
Foster system effectiveness by revealing and designing out negative externalities.
All ReSOLVE levers.



1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input

Source:Ellan MacArthur Foundation, SUN, and McKinsey Center for Business and Environment, drawing from Braungart & McDonough and Cradle to Cradle (C2C)

[2] https://www.bing.com/images/search?q=ellen+macarthur+foundation+images+butterflies&FORM=AWIR

2.2. CLIMATE CRISIS AND CIRCULAR ECONOMY

Today, we're facing multiple global challenges, such as combat against climate change, extinction of flora and fauna, endangered ecosystems, continuous growth of waste and pollution, and shortages of natural resources that result from climate change and pollution.

The report of the Ellen MacArthur Foundation called Completing the Picture: How the Circular Economy Tackles Climate Change[3] underlines that it is not enough to transition to renewable energy sources, because that can reduce global GHG emissions only by 55%, whereas the remaining 45% of emissions originate from product manufacturing and use. The report specifies how transitioning to circular economy in five key areas can open new opportunities – cement, plastic, steel, aluminium and food. The implementation of circular business models only in these five areas can result in a total GHG reduction by 9.3 billion tons before 2050, which equals eliminating emissions from all manners of transportation at the global level.

The report of the Intergovernmental Panel on Climate Change (IPCC)[4] explains the global climate crisis and the measures that must be implemented between 2020 and 2030 in order to meet the goals from the Paris Agreement, in which the signatory states have accepted the commitment to maintain the global warming between 1.5°C and 2°C.

The Emissions Gap Report from 2019[5] of the United Nations Environmental Program (UNEP) analyzes the progress of countries toward meeting the commitments to resolve the global climate crisis.

This Report also identifies the key opportunities for countries to reduce the global warming through energy transition. Reaching the goal of 1.5°C is not impossible if the appropriate measures are continuously implemented at the national level, including decarbonisation of the energy sector by means of increased use of renewables and higher energy efficiency. It was identified that the majority of CO2 emissions originate from the energy sector, followed by the manufacturing industry, transport and construction.

Circular economy can play an important role in solving the climate crisis and achieving the UN climate goals, but it is necessary to fundamentally alter the global approach to climate action. These reports clearly indicate the message and the added value of circular economy.

[3] https://www.ellenmacarthurfoundation.org/assets/downloads/Completing_The_Picture_How_The_Circular_Economy-_Tackles_Climate_Change_V3_26_September.pdf
[4] IPCC (2019): Special Report Global Warming of 1,5°C, https://www.ipcc.ch/sr15/
[5] UNEP (2019): Emissions Gap Report, https://www.unenvironment.org/resources/emissions-gap-report-2019

2.3. CIRCULAR ECONOMY AS PART OF THE WIDER FRAMEWORK OF SUSTAINABLE DEVELOPMENT GOALS

The United Nations General Assembly adopted the 2030 Agenda for Sustainable Development in 2015 as a universal call for action to end poverty, increase wellbeing and preserve the planet, by securing peace and prosperity in the world by 2030. **The Agenda contains 17 Sustainable Development Goals** focused on poverty eradication, education, social welfare, healthcare, economic growth, and climate action.

Image 4:
SDGs

There are seven SDGs that are directly related to the implementation of circular economy: Goal 7 – affordable and clean energy, Goal 8 – decent work and economic growth, Goal 11 – sustainable cities and communities, Goal 12 – responsible consumption and production, Goal 13 – climate action, Goal 14 – life below water and Goal 15 – life on land.

3 KEY ELEMENTS OF CIRCULAR ECONOMY

3.1. TODAY, ONLY 9% OF THE WORLD IS CIRCULAR

The environmental protection policy is a global economic policy. However, according to the Circularity Gap Report,[6] only 9% of the world is circular right now, and this is a negative trend. According to this Report, it is possible to achieve a higher degree of circularity by:

- transferring the global trends to national, regional and commercial levels;
- establishing implementation models and measures to monitor the transition, which will involve penalty policies;
- providing accessible education and transfer of know-how; and
- involving different stakeholders in the process of establishing a global coalition for circular economy.

3.2. CIRCULAR BUSINESS MODELS

Each circular business model has its own characteristics. Depending on the productivity needs of each business sector, the models can be used individually or in combination.

1. Sharing platforms

This business model is based on platforms that allow consumers to use and share services and products, and it is equally open to legal entities and natural persons. This means that a consumer uses the product, but doesn't own it. Therefore, the consumer is not responsible for the product after using it. This model assures the maximum use of a product, and today it's mostly employed by the companies specialised in increasing the usage rate of products, thus reducing the need to manufacture new ones. In this way, these companies have a big impact on traditional manufacturers. This well-known circular model is mostly used in the car industry, tourism, or renting of heavy machinery in construction. It can also be applied in the energy sector, textile industry and production of electronic devices.[7]

2. Resource recovery

The modern technological innovations and processes allow the materials to be reused for the manufacturing of identical or different products, which contributes to operating without waste. This model enables companies to eliminate the "material leakage", i.e. the waste of resources, and it increases the economic efficiency by retrieving or repurposing the materials. The reuse of materials from an expired

[6] https://www.circularity-gap.world/

[7] Izveštaj (2014): https://www.accenture.com/t20150523T053139__w__/us-en/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Strategy_6/Accenture-Circular-Advantage-Innovative-Business-Models-Technologies-Value-Growth.pdf, str. 14.

product to produce another product promotes the reuse of second-hand resources, and transforms waste into value through the innovative reuse of raw materials. It is particularly suitable for companies that have large manufacturing plants in which the production waste can be efficiently returned to the production process.

3. Product life extension

Repairs, upgrades or redesign of an existing product allow this product to have a longer lifespan. Product life extension enables the companies to extend the life cycle of both products and materials. Therefore, the values that would have been lost are preserved and improved by means of repairs, upgrades and redesign. Reusing materials and saving resources and energy will generate new revenue for the company. In addition, this model allows targeted product upgrades (for instance, instead of replacing the entire product, only one outdated component is replaced). This model is suitable for complex industrial segments (such as industrial equipment), as well as for companies dealing in products whose most recent versions only partially offer new features for clients. The most common example of this business model are electronic devices, such as phones and tablets. Repairs, upgrades or redesign of an existing product allow this product to be in use for a longer period of time.

4. Product as a service

This business model replaces the traditional concept of market operation that rests upon the notion of owning and using a product. In this business model, based on a leasing contract or the performance principle, several consumers can use the same product. The very approach to product use is changed, therefore contributing to product longevity by keeping the product in the ownership of the manufacturer.

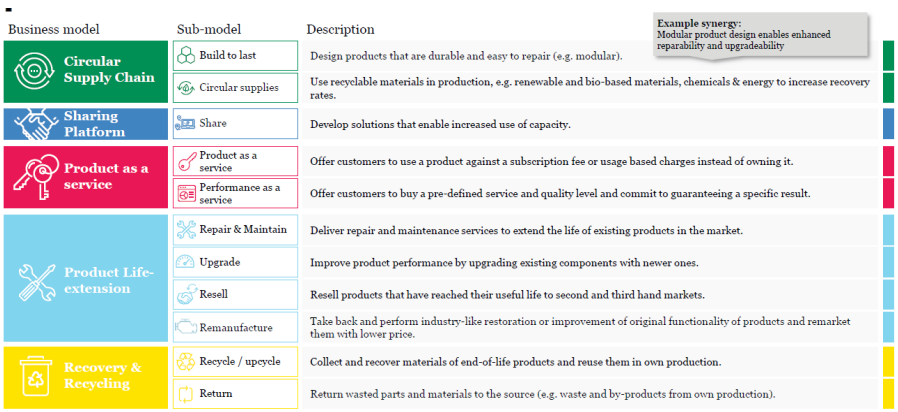


Image 5:
Diagram of circular economy business models for the manufacturing industry
(Source: Sitra, Technology Industries of Finland and Accenture)[8]

[8] https://www.sitra.fi/en/publications/circular-economy-business-models-manufacturing-industry/

3.3. TRANSITION TO CIRCULAR ECONOMY

For companies, transition from linear to circular economy means implementing different circular business strategies:

- **Circular design** – Companies should design their products sustainably, so that when a product's lifespan expires, it is returned to the production process. Different circular design models contribute to creating products whose materials, production process, type and purpose are in harmony with nature. These include cradle-to-cradle model,[9] biomimicry,[10] design for reconstruction and disassembly,[11] flexible design,[12] design for maintainability and repairability,[13] and design for product recovery and recycling.[14]

When designing a product, it is necessary to systematically take into consideration all stages of its life cycle.[15]

- **Procurement of raw materials.** The procurement policy should change, so that instead of procuring primary materials, it purchases the secondary ones whenever it is possible and reasonable. For manufacturing, raw materials should be biodegradable, reusable and sustainable in terms of use of limited natural resources.
- **Production sectors** should introduce new production process models, so that they can remanufacture the existing products instead of manufacturing new ones "from scratch", through modular products and their upgrades.
- **Sales and revenue aspects of the company** should focus on building the relationship with their clients. They should inform the clients about the advantages offered by the new product placement model, such as the availability of repairs and the guaranteed return of raw materials to the manufacturer.
- **Company's responsibility** means that first and foremost it prevents waste generation, and then it prepares waste for reuse. In that sense, the companies are tasked to focus their production processes on manufacturing without waste, i.e. not to contribute to the increase of waste and pollution, but to implement the most appropriate business model to retrieve the products and materials that they had placed in the market, and reuse them in remanufacturing.

According to the study Growth Within: A Circular Economy Vision for a Competitive Europe by the Ellen MacArthur Foundation,16 between 2010 and 2030, cir-

[9] https://www.ceguide.org/Strategies-and-examples/Design/Cradle-to-Cradle-R
[10] https://www.ceguide.org/Strategies-and-examples/Design/Biomimicry
[11] https://www.ceguide.org/Strategies-and-examples/Design/Design-for-maintainability-reparability
[12] https://www.ceguide.org/Strategies-and-examples/Design/Design-for-flexibility
[13] https://www.ceguide.org/Strategies-and-examples/Design/Design-for-maintainability-reparability
[14] https://www.ceguide.org/Strategies-and-examples/Design/Design-for-recoverability-recyclability
[15] See more at: UNDP (2019) Manual for Circular Product Design
[16] "Growth Within: A circular economy Vision for a competitive Europe", Ellen MacArthur Foundation (publikacija iz 2015. godine).

cular economy can lead to an 11% GDP increase in the European Union, whereas by 2050 the EU's GDP could grow by 27%, in comparison to the currently planned GDP growth (4% by 2030, 15% by 2050).[17] This positive impact will be also felt in the environmental protection and the overall wellbeing of society.

3.4. IDENTIFIED CHALLENGES IN TRANSITION TO CIRCULAR ECONOMY

In our current system of production and consumption, transition to circular economy requires radical changes, innovations, and measures. Even though the business sector is the leading force in innovations and changes towards circular economy, according to the reports and available data, the implementation of circular economy is still solely based on good practice examples. There are numerous technological challenges in the production process and the application of circular product design, but also in the reuse of products that are currently in use. Besides, we must not forget the conflict of interest in technological opportunities, the economic sustainability of new business models, and the quality standard.

Here is a list of challenges related to the practical barriers in the implementation of circular transition:

1. Lack of information and need to acquire additional knowledge and skills about the circular economy business models, as well as to understand the importance of transition in the context of market competitiveness;
2. Availability of adequate funds and financial justification for the use of new technological processes;
3. Creation and implementation of circular economy public policies and standards;
4. Availability of grants and subsidies for circular economy investments;
5. Underdeveloped circular culture among the consumers.

From the perspective of law, finances and public policies, dilemmas that persist are related to how to create a system that will prevent the overuse of resources, increase the recovery of materials and reduce the uncontrolled pollution and waste disposal in landfills.

A systemic cross-sectoral stakeholders' approach, along with national action plans for transition to circular economy, can help solve the identified barriers.

[17] "Growth Within: A circular economy Vision for a competitive Europe" Ellen MacArthur Foundation (publikacia iz 2015. godine), page 33.

4 EUROPE ON ITS JOURNEY TOWARDS CIRCULAR ECONOMY

4.1. FOCUS ON THE EUROPEAN GREEN DEAL

Cleaner technologies, innovations and research on GHG reductions are the top priorities of the European Commission, along with the ambition **to turn Europe into the global leader in circular economy.** In March 2020, the European Green Deal offered a new Circular Economy Action Plan focusing on the sustainable use of resources, in particular in the textile industry and construction.[18] With the European Green Deal, the European Commission will complete its process of macro-economic coordination by focusing on sustainable economic development to achieve the citizens' wellbeing.[19]

The European Green Deal is part of the strategy to implement the UN 2030 Agenda and to achieve the SDGs, among other priorities.

4.2. AN OVERVIEW OF EU POLICIES AND REGULATIONS

In order to encourage the transition of European economy from the linear to the circular model, in 2014 the European Commission adopted a document called Towards a Circular Economy: A Zero Waste Programme for Europe[20]. In this document, waste is treated as a resource, contributing to the concept of "closing the loop" which is the very core of circular economy. In December 2015, the European Commission adopted a document called Closing the Loop - An EU Action Plan for the Circular Economy. This Action Plan sets forward a specific and ambitious EU mandate to provide support to transition to circular economy. Circular economy is recognized as the way to protect companies from resource shortages and unstable prices, which increases the competitiveness of the EU, creates new business opportunities, and encourages more inventive and efficient production methods. Even though the Action Plan is focused on the EU, the document acknowledges that in order to successfully introduce circular economy, all stakeholders at all levels must be involved, including member states, regions, cities, companies and individual citizens. The Action Plan also facilitates the goals of the 2030 Agenda [21], in particular SDG 12 which is about sustainable production and consumption. Several key areas for circular economy implementation are identified:

[18] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN
[19] https://sdg.iisd.org/news/european-commission-launches-green-deal-to-reset-economic-growth-for-carbon-neutrality/
[20] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0398R%2801%29
[21] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0614

Table 1: **Overview of the key relevant policies of the EU**

	Document name	Remarks
	Towards a circular economy: A zero waste programme for Europe (2014)[22]	The document sets up a joint coherent framework for the EU to promote circular economy, which includes: - establishing a framework for policy creation; - changing the waste management policies, increasing recycling, and preventing the loss of valuable materials; - creating business opportunities, investments and economic conditions for the implementation of circular economy; - new business models, design and industrial symbiosis to achieve zero waste;
	Closing the loop - An EU action plan for the Circular Economy (2015)[23]	Contains 54 measures for the sectors of manufacturing, consumption, waste management and new markets, and accordingly identifies the priority sectors: plastic, food waste and food flow, critical natural resources, construction – debris, financial programmes for innovations and monitoring.
	Clean Energy For All Europeans (2016) [24]	This package of measures proposes a new framework to step up, transform and consolidate the energy transition, which will result in energy independence. The EU is the leader in the energy independence market, producing energy with low CO2 emissions. By ratifying the Paris Agreement, the EU aims to produce clean energy based on the new business models.
	A renewed EU Industrial Policy Strategy (2017) [25]	The EU Industrial Policy aims to establish an enabling environment for industrial competitiveness. It is also integrated in many other EU policies. The EU Industrial Policy particularly focuses on: - faster industrial adaptation to the structural changes; - creation of an enabling environment for initiatives and company development in the EU, with a special emphasis on SMEs; - encouraging cooperation between companies; - improved use of the industrial potential offered by innovations, research, and technological development.
	Monitoring Framework on progress towards a circular economy[26]	The indicators established in this document refer to: • Production and consumption (resource independence, green public procurement, waste generation, food waste) • Waste management (overall recycling rate, recycling of special waste flows) • Use of secondary raw materials (share of recycled materials in production processes, market for recycled materials) • Competitiveness and inventiveness (private investments, jobs, added value of products, trademarks)
	Report on the implementation of the Circular Economy Action Plan[27]	Contains detailed references to all activities implemented between 2015 and 2018. It is expected that by 2030 there will be visible results in the context of the new economic model.

[22] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN
[23] https://sdg.iisd.org/news/european-commission-launches-green-deal-to-reset-economic-growth-for-carbon-neutrality/
[24] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0398R%2801%29
[25] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0614
[26] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0398R%2801%29
[27] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0614

	Document name	Remarks
	A European Strategy for Plastics in a Circular Economy (2019)[28]	The strategy promotes new business models and goals in the area of recycling plastic.
	European Green Dealn (2019) [29]	The European Green Deal provides improved guidelines with activities to encourage efficient use of resources, transition to clean production, climate action and pollution reduction. This document indicates the necessary investments and available funds, and it underlines the importance of inclusive transition. The European Green Deal is relevant to all economic sectors. It particularly focuses on the sectors of transport, energy, agriculture, steel, cement and other construction industry materials, ICT, textile industry, and chemicals.
	Sustainable Europe Investment plan[30]	The Investment Plan is the pillar of the Green Deal implementation. In the next decade, it will mobilise at least 1 trillion EUR via different financial instruments and mechanisms. The Investment Plan includes the public sector and private businesses, as well as the administration and various private and public funds. The document shows different financial sources and manners of funding needed to achieve the ambition of carbon-neutral Europe as a continent. This package of measures also includes the non-EU member states (the Western Balkans states).
	A New Industrial Strategy for Europe [31]	The New Industrial Strategy includes all stakeholders within the value chain. The new approach, proposed by the strategy, focuses on creating public policies with the full participation of the industry. This strategy shows the direction and the activities needed to achieve the set goals by 2030. Through various administrative and financial measures, the industry shall receive support to transition to circular business models and cleaner production, assisted by digitalisation.
	Circular Economy Action Plan (2020)[32]	The Circular Economy Action Plan aims to speed up the changes, in line with the Green Deal. In its Annex, this Plan contains a list of regulatory activities that will be implemented in order to transition to the circular economy model, and it will make sure that the regulatory framework is simplified, so that it maximises the new opportunities offered by the transition measures, while minimising the burden to individuals and economies.

In May 2018, a package of circular economy directives was adopted, redefining the goals for collection and recycling of communal waste, package waste and special waste flows, as well as the lowest allowed percentage for communal waste disposal in landfills (Table 2). All these new measures and requirements aim to encourage the EU member states to introduce the conditions for transition to circular economy in their national legislations, acknowledging that circular economy is a sustainable concept creating values in business, economy, and society as a whole, while reducing the use of natural resources and the negative environmental impact.

[28] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0098&from=EN
[29] https://sdg.iisd.org/news/european-commission-launches-green-deal-to-reset-economic-growth-for-carbon-neutrality/
[30] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0398R%2801%29
[31] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0614
[32] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0398R%2801%29

Table 2: **Overview of the relevant directives for the circular economy implementation measures package**

	Document name	Remarks
	Directive (EU) 2018/851 Amending Directive 2008/98/EC on Waste Framework directive [33]	Communal waste recycling: 55% by 2025, 60% by 2030, 65% by 2035. Separate collection of hazardous waste from households by 2022, bio-waste by 2023, and textile by 2025. Reducing food waste: 30% by 2025, 50% by 2030. Maximum share of communal waste disposal in landfills shall be up to 10% in 2035.
	Directive 1999/31/EC of 26 April 1999 on the landfill of waste [34]	New provisions limit the disposal of individually collected communal waste to the maximum of 10% by 2030. However, certain member states will be allowed transition periods for adaptation even after 2030.
	Directive (EU) 2018/852 of the European Parliament and of the Council of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste[35]	New minimal recycling goals: 65% of total packaging waste by December 31st 2025, out of which 50% of plastic. 70% of total packaging waste by December 31st 2030, out of which 55% of plastic.
	Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment[36]	The new European Directive primarily prohibits the use of plastic to manufacture single-use items, replacing it with other sustainable materials in the market. According to the Directive, the manufacturers shall be obliged to contribute to the costs of plastic waste management and removal, as well as to raise awareness on the harmful effects of plastic products.

4.3. EU MEMBER STATES ON THEIR JOURNEY TOWARDS CIRCULAR TRANSITION

The EU member states have the obligation to harmonize their national policies with the new development strategies and public policies. From 2014 to December 2018, 14 out of 28 countries have developed a strategy, a roadmap or an action plan for transition to circular economy.[37] At the moment, some countries are even revising their first strategic documents. Also, we should emphasise that the European Commission did not introduce a mandatory approach for the preparation of strategic documents, but we can expect that the Green Deal will raise ambitions in this regard.

Public policies for circular economy at the national, regional and local levels were also developed in line with the respective administrative and territorial structures of member states.

[33] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.150.01.0109.01.ENG
[34] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31999L0031
[35] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.150.01.0141.01.ENG&toc=OJ:L:2018:150:TOC
[36] https://eur-lex.europa.eu/eli/dir/2019/904/oj
[37] European Economic and Social Committee Final Report (2019): Circular economy strategies and roadmaps in Europe Identifying synergies and the potential for cooperation and alliance building, doi:10.2864/886410

Each individual state is competent to organise and implement the activities in the most suitable way. In the majority of countries, this process is led by the government, whereas the national plans and documents define the transition to circular economy in line with the SDGs and the 2030 Agenda

4.4. DIGITALIZATION AND CIRCULAR ECONOMY

The EU is going through two parallel transitions that influence the transformation of its economy and society – one is the transition from linear to circular economy, while the other refers to digital transformation. According to the European Policy Centre (EPC) document Creating a Digital Roadmap for a Circular Economy, digitalization[38] – data and digital solutions such as digital platforms, smart devices, AI, internet of things and blockchain technologies – already contributes to the development of circular economy. Among other things, digitalization is used for a more efficient deployment of natural resources, improved product design, production and consumption, reuse and repair of products, remanufacturing, recycling, and waste management. **Digitalization allows a more efficient exchange of information and the use of modern technologies.** At the same time, the necessary condition for a successful transition to circular economy is to establish the continuous communication and firm collaboration between the different stakeholders (state, industry, consumers, waste industry), as well as to implement the complex technical solutions (product eco-design, recycling, repairs). **Therefore, digitalization can provide the key contribution to the very process of transition to circular economy**. Products may contain labels (QR codes, RFID chips) that consumers or recyclers can scan in order to access the relevant product data, such as whether it contains hazardous chemicals, or what to do when product becomes waste. Production automatization and recycling can contribute to a higher efficiency and a lower waste generation and energy consumption.

However, while circular economy and digitalization can go hand in hand, this is not guaranteed. Public policies for circular economy should always take into account the digitalization process, in order to avoid a gap between these two processes. Circular economy support measures may ignore the opportunities offered by digitalization, whereas digitalization support measures may ignore the possible negative effects of digital technologies on circular economy. Harmful effects of digitalization may be reflected in an increase of electronic waste, as well in higher consumption of electricity, and precious and rare materials. **Therefore, it is crucial that decision-makers from different domains collaborate with each other and with other key stakeholders (business, civil society) in order to assure a synergy between circular economy and digitalization.**[39]

[38] https://wms.flexious.be/editor/plugins/imagemanager/content/2140/PDF/2019/pub_difital_roadmap_for_circular_economy.pdf

[39] The author of Circular and Digital Economy Stefan Šipka works as an analyst EPC in Brussels, and he is an external associate of UNDP. The text is partly based on the survey that the EPC had implemented within the project Digital Roadmap for a Circular Economy.

5 SERBIA ON ITS JOURNEY TOWARDS CHANGES

5.1. SYSTEMIC AND STRATEGIC APPROACH TO TRANSITION

The process of transition to circular economy is specific and unique for each individual country. The transition to circular economy stands for a multi-annual, systemic and methodological approach to sustainable development, preservation of natural resources and reduction of environmental pollution, in a way that contributes to human health. It does not include solely one sector or one area, but it is a cross-cutting theme in all sectors and areas of the society, which must be grounded in clear principles of doing business in the context of circular economy. Given that we're talking about a modern industrial revolution, this issue must be approached from several different perspectives – strategic, legislative, technical, economic, but also from the point of view of standards and other voluntary instruments (EMAS, ECO label). It is necessary to synchronize the national policies and markets with the global needs and demands for competitiveness. Therefore, a uniform solution does not exist, and it's not possible to implement someone else's identical model when introducing the circular economy principles in Serbia. **Improving the business model of Serbian economy and harmonizing operations with the principles of circular economy in the Republic of Serbia can greatly contribute to raising the competitiveness of its national companies and solving the socio-economic issues.**

In the 2017 Programme of the Government of the Republic of Serbia, it is said that environmental development will unfold in line with the principles of circular economy applied to the infrastructure projects.

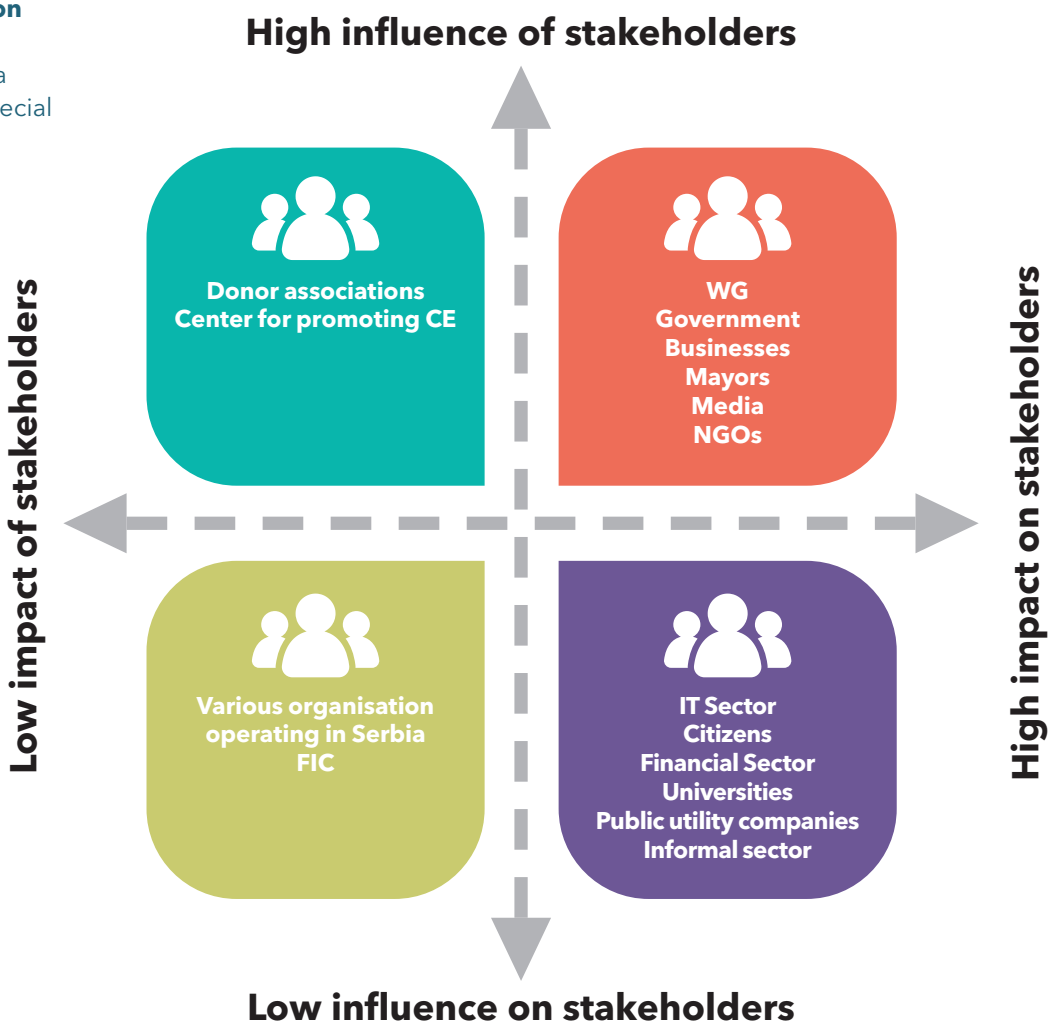
Transition to circular economy will keep highlighting the necessity to change the business model of the national industry by promoting eco-sustainable operations. This means introducing and using standards in production process and eco-design, and promoting the new eco-friendly materials and technologies – all in the context of the new market "demands" and needs. However, transition to circular economy must be recognized as a priority strategic goal that shall guide the development of the Republic of Serbia. In addition, **it is necessary to harmonize the public policies of the Republic of Serbia and develop indicators modelled after the EU ones, in order to allow the qualitative and quantitative monitoring of the transition process.**

THE ROADMAP AIMS TO:

- Provide information about the importance of transition to circular economy, i.e. about the new business models and competitiveness criteria. It elaborates on the opportunities for a faster development of Serbia, offering solutions to problems such as management of secondary raw materials (including waste), need for resource and energy independence, and environmental security.
- Identify the sectors in which the circular economy tools can be introduced more easily, but without underestimating the less developed sectors and traditional industries that will require more investments to transition to the new production models.
- Recognize the key actors of change whose synchronized, joint activities can contribute to a faster transition to circular economy.

5.2. RECOGNIZED LEADERS IN CIRCULAR ECONOMY IN SERBIA

Image 6:
Identified circular transition stakeholders
(According to the results of a two-day workshop of the Special Working Group for Circular Economy)



The key for a successful transition to circular economy rests upon a coherent, interactive and systemic network of all identified stakeholders.

5.3. REASONS BEHIND THE ROADMAP FOR CIRCULAR ECONOMY IN SERBIA

The Roadmap for Circular Economy in Serbia presents different approaches to reasons for transition to circular economy, as well as economic models and possible ways to increase the national productivity through the new global trends of economic growth, which will lead towards a lower use of natural resources and a lower negative environmental impact.

Image 7:
Graphic overview of the reasons behind the Roadmap

ECONOMY	POLITICS	ENVIRONMENTAL PROTECTION	SOCIETY
Improving competitiveness	Regional positioning	Waste reduction	Increased social wellbeing
Market development	Establishing national political consensus	Reduction of GHG emissions	Improved consumer rights
(Horizontal) diversification of economy	EU accession	Preservation of national resources	Savings in household budgets and improved human health
Development and implementation of new business models and technologies	Implementation of different international obligations in the area of environmental protection and climate change	Improving the energy independence and the use of renewables	Green jobs

ECONOMY

According to the 2018 Report of the World Economic Forum[40], in the past few years the Republic of Serbia has had an increase in export and GDP on account of placing semi-finished products, products and raw materials in the European and global markets. In order to continue with its social development and increased competitiveness in the international and European markets, Serbia must follow the European and global economic trends, including the new competitiveness criteria (type of materials and manner of their use, business models, cleaner technologies, innovations, resource and energy efficiency).

The benefits of transition are reflected in the overall social progress, resource independence, increase of competitiveness, increase of GDP, reduction of the unemployment rate, creation of new business opportunities for new "green" jobs, and opening of new markets.

[40] The Global Competitiveness Report 2018, https://www.weforum.org/reports/the-global-competitveness-report-2018, page 499.

POLITICS

The EU accession is one of the most important strategic priorities of Serbia. In this regard, Serbia has to harmonize its domestic legislation with the European regulations and standards. The European Green Deal and the new Circular Economy Action Plan impose greater requirements that Serbia will have to transpose into its national legislation. In addition, Serbia is expected to align its policies with the 2030 Sustainable Development Agenda and the Paris Agreement, as well as to implement the monitoring mechanisms for the activities undertaken in these areas. If it begins its journey of change in line with the circular economy principles, Serbia has the opportunity to position itself as the regional leader and to motivate other countries of the Western Balkans to follow its example.

ENVIRONMENTAL PROTECTION AND THE ECONOMIC OVERVIEW OF INVESTMENTS

In Serbia, the share of environmental protection costs in % of GDP stood at 0.8% in 2018, whereas in 2017 it was 0.7%, making it 0.1% higher in comparison to the previous year. According to the National Statistical Office,[41] when it comes to the structure of total environmental protection costs for 2018, the share of investments amounted to 19.4%, whereas the current expenditures stood at 80%. The largest part of the investments was in waste management, standing at 42.2% (3,315.1 billion RSD). In the investment structure for environmental protection in the industry sector[42], the share of pollution prevention stood at 15.9% (494.3 million RSD), whereas investments in the treatment of the existing pollution amounted to 84.1% (2,620 billion RSD).

Table 3 provides an overview of funds allocated for environmental protection in % of GDP (for the period 2006-2016) in Serbia.

Table 3: **Overview of funds allocated for environmental protection for the period 2006-2016 in % of GDP[44]**

	Serbia	Central and Eastern Europe average[43]
EUROSTAT and National Statistical Office – private and public sector		
Total costs	0.7%	2%
Investments	0.3%	0.7%
Methodology of earmarked expenditures		
Total costs	0.5%	1%
Investments	0.2%	0.4%

[41] https://publikacije.stat.gov.rs/G2019/Pdf/G20191309.pdf
[42] The industrial sectors, according to the classification of activities, are as follows: mining, processing industry, energy, gas and steam supply.
[43] Data for Serbia includes the period from 2006 to 2016, and for countries of Central and Eastern Europe, the period from 2006 to 2013.
[44] The Fiscal Council (2018): The analysis of the Fiscal Council, based on the Eurostat data, the budget of the Republic of Serbia and the budgets of local self-governments.

The structure of environmental protection investments in the industry sector was as follows:
1. The share of pollution prevention stood at 15.9% (494.3 million RSD),
2. The investments in the treatment of the existing pollution amounted to 84.1% (2,620 billion RSD).

According to the World Bank's Doing Business list[45], Serbia ranks 94th when it comes to energy access opportunities. This reflects its high degree of dependence from coal and oil energy, resulting in significant levels of GHG emissions.

Table 4 shows the resource management activities (for 2015, 2016 and 2017) of the sector for environmental goods and services: employment, gross added value, production and export in this particular sector, presented according to environmental protection domains.

Table 4:
Overview of the yearly activities of the sector for environmental goods and services

		2016	2017
Employment (full time equivalent)	8334	8209	**10264**
Gross added value (million RSD)	236	277	**309**
Production output (million RSD)	11581	12428	**17377**
Export (million RSD)	2466	3392	**3766**

According to the National Statistical Office, this table shows the growth of employment in the sector for environmental goods and services in the given period of time.

5.4. STEPS TOWARDS TRANSITION AND PUBLIC POLICY HARMONIZATION

Here is an overview of institutions that are actively involved in the creation of policies relevant to transition to circular economy:

[45] https://www.doingbusiness.org/content/dam/doingBusiness/country/s/serbia/SRBpdf

Institution	Dokument
Ministry of Construction, Transport and Infrastructure	The 2030 Sustainable Urban Development Strategy of the Republic of Serbia (Official Gazette of Republic of Serbia, no. 47/2019)
	Law on Spatial Planning of the Republic of Serbia (Official Gazette of Republic of Serbia, no. 88/10)
Ministry of Energy	The Energy Development Strategy of the Republic of Serbia by 2025 with projections by 2030 (Official Gazette of Republic of Serbia, no. 101/2015)
Public Procurement Office	The Public Procurement Development Program in the Republic of Serbia 2019–2023
	Law on Public Procurement (Official Gazette of Republic of Serbia, no. 91/2019
Ministry of Economy	The Industrial Development Strategy of the Republic of Serbia 2021-2030 (Official Gazette of Republic of Serbia, no. 35/2020)
	The Rulebook on criteria for defining by-products and on form, manner and deadlines to submit reports about by-products (Official Gazette of Republic of Serbia, no. 76/2019) The Rulebook on the content of application for registration in the Registry of by-products and Registry of waste that stopped being waste (Official Gazette of Republic of Serbia, no. 76/2019) Ex ante Effect Analysis of the Circular Economy in Serbia The Cleaner Production Implementation Programme 2020–2022 – currently in the adoption procedure It is expected to adopt new public policies for waste management, as well as a new Law on Waste Management which will play an important role in circular economy.
Ministry of Education, Science and Technological Development	Smart Specialization Strategy in the Republic of Serbia 2020-2027 (Official Gazette of Republic of Serbia, no. 21/2020)
Serbian Chamber of Commerce	Plastic Management Strategy by 2030 – the draft initiative is currently being developed
	Plastic Management Strategy by 2030 – the draft initiative is currently being developed

5.5. OPPORTUNITIES AND BARRIERS FOR CIRCULAR ECONOMY IMPLEMENTATION IN SERBIA

Regulatory and institutional framework

In the regulatory sense, **the implementation of circular economy in Serbia requires multi-layered and multi-sectoral connections between the national public policies and regulations** that will allow the creation of an enabling environment for new investments. Specifically, this means that priority sectors at the national level should be defined in line with the Serbian Government's priorities, infrastructural development and institutional capacities. This requires the creation and harmonization of national planning documents, amendments of laws (in different sectors) and technical regulations, promotion of voluntary instruments, introduction of economic instruments aligned with budget planning, and development of monitoring mechanisms for the implementation of regulations that contribute to the sustainable use of resources.

In the institutional sense, representatives of the executive branch and the Parliament must have a unique position on the creation of policies for the sustainable use of resources in the context of circular economy. In addition, representatives of public administration must be educated about the new pro-

duction concept, as well as about the need to improve and simplify certain administrative procedures for new investments.

Finances / Investments

Circular economy requires significant financial investments by all stakeholders, and it entails the change of the business model concept. In addition, we should bear in mind that the European Commission has announced new funds to support the industry in its transition to circular economy business models. That being said, the Serbian economy needs to keep developing, and therefore it should adhere to the new competitiveness criteria set up by the global market leaders, which include elements such as used resources, product lifespan, pollution reduction and waste prevention.

Research and development supporting the industry

The research potential of the scientific community is not being sufficiently used to contribute to industrial development. There is also a lack of awareness about the circular design advantages in the production process. The knowledge and the level of information about the importance of circular economy digital platforms are underdeveloped.

Waste as a raw material

The waste management policy is inadequate, outdated and riddled with issues from the past, which causes problems in the implementation of the waste sector regulations. The awareness level about the potential of waste as a raw material is low, while the market for secondary raw materials is underdeveloped.

Other barriers

Representatives of the industry and economy aren't sufficiently trained to introduce the new circular economy business models.

Capacities at the local level are underdeveloped, and there are large economic power gaps in the different regions of Serbia.

A binding timeframe for the executive branch would contribute to a faster transition, encouraging the economy to make new investments. The same goes for flexibility in the creation of public policies.

The infrastructure is underdeveloped, and the economic reasons for business networking between companies aren't sufficiently clear. In the industry itself, the new business models aren't well known, and there's a lack of awareness about the funding sources available to implement the business changes in the context of circular economy.

The state needs to change its resource policy by introducing various measures that will preserve the national resources and emphasise the sustainable reuse of used resources and materials in its public policies.[46]

[46] Obstacles for the implementation for circular economy were identified within the closed interactive workshop "Cirkulaton" held in May of 2019, with different representatives of the professional public, as part of the Circular Economy Platform for Sustainable Development in Serbia.

5.6. PRELIMINARY IDENTIFIED PRIORITY SECTORS IN SERBIA

The Roadmap is a "living document" aiming to specify the preliminary identified potential sectors and stakeholders, recognize the good practice examples and initiatives, and underline the known advantages and barriers in the selected sectors, with the goal to **give recommendations for further steps for Roadmap development and transition to circular economy in Serbia.**

At the meeting of the Special Working group for Circular Economy, during a two-day workshop, four potential sectors were identified as relevant for the Circular Economy Roadmap of Serbia, according to the methodology of other roadmaps and based on the opinion of the Working Group members

The potential sectors were selected in line with the public policies of the Government of the Republic of Serbia and the following criteria:

1. they must have the economic potential to increase competitiveness;
2. they must operate with the sustainable use of resources;
3. they must work on preventing waste;
4. they must be available to the wider public, in the sense that the preconditions to apply circular business models already exist there;
5. they must be able to achieve positive effects in a short amount of time.

The priority sectors were selected based on different factors, including the availability of data and criteria, and possibility to create value chains. This was modelled after the comparative roadmaps and strategies developed by other countries, particularly the Roadmap of Slovenia. The sectors were selected based on the possibility to quickly and adequately implement the concept of circular economy business models, by efficiently using the raw materials, increasing the value of used materials, mobilizing the use of circular economy business models for products and services, promoting energy efficiency, closing the loop in the use of materials, preventing waste generation, implementing green public procurement, and developing the circular culture in the general society.

Selected sectors:

It is important to note that our intention was not to exclude the other economic sectors from the transition to circular economy, or that they are less of a priority, especially bearing in mind the significance of well-interconnected industrial sectors that depend on each other. These sectors here are selected as an example to showcase the opportunities to improve the economic and environmental impact of the business system.

MANUFACTURING INDUSTRY

AGRICULTURE AND FOOD

PLASTICS AND PACKAGING

CONSTRUCTION

MANUFACTURING INDUSTRY

There are examples where the manufacturing industry is already imp-lementing the circular economy principles in order to save materials and energy and to achieve a higher profit. **The manufacturing industry is crucial for circular economy.** In Serbia, this is the industry with the biggest export potential, so being an export-oriented industry, it will be forced to improve and harmonize its production processes with the EU standards.

The potential to transition from linear to circular production in the manufacturing industry is great. Investments are needed to improve the production processes and to introduce new technologies, circular design and the use of eco-friendly, more resilient materials. Given these necessary investments, one of the ways to reorganize operations and achieve savings is to retrieve the used products and return them to the production chain (through improved design) for upgrades or remanufacturing, which will save energy and resources, and reduce waste. Therefore, circular economy facilitates the use of environmental, economic and social opportunities for manufacturing with sustainable resources, by means of modern clean technologies and innovations. This allows financial sustainability through the use of new business models.

In addition to these measures, it is necessary to monitor the flow of materials. In part, this will be resolved by closely monitoring the by-products.

According to data from the Agency for Environmental Protection, the waste metal that was previously exported is being imported for the needs of the manufacturing industry. The state cannot impose repressive measures to withhold the market development and free flow of goods. However, companies should recognize each other's interests and collaborate to obtain the necessary materials under the same market conditions. Along with the general benefit for the society and the reduction of environmental pollution, this model yields direct benefit for the companies, because it secures the procurement of raw materials for manufacturing.

Table 5:
Aggregated overview of export and import in Serbia in 2018[47]

Waste type	Export (t)	Import (t)
Metal	316.020	35.981
Paper and cardboard	81.490	101.622
Glass	15.355	654
Plastic	5.571	11.271
Batteries and accumulators	5.004	1.081

[47] Ministry of Environmental Protection, Agency of Environmental Protection in Serbia (2019): Waste management in the Republic of Serbia in the period from 2011 to 2018 http://www.sepa.gov.rs/download/Otpad_2011_2018.pdf

The role of design in the manufacturing industry

n circular economy, product design is of crucial importance, because adequate design can preserve natural and unused resources, extend the product lifespan, and facilitate its recycling and remanufacturing. Even if products and materials are designed in a "smart" way, if resources are not used efficiently, waste will be generated throughout the entire production process.

Basic principles of circular product design

Circular product design is the initial, crucial phase for implementing the circular economy principles. This is because it sets up the preconditions to achieve the full potential of circular economy in other phases too – production, use and waste management.

These are the ten basic principles of circular economy:

Selection of materials; use of materials; circularity of materials; simple dismantling; quality and longevity; green technologies; adaptability and multifunctionality; design-to-last; circular distribution; and innovative models.
The implementation of circular economy principles in product design entails the following: use of easily renewable resources; combining the resources in a way that allows easy separation; maximum efficiency in the use of resources; minimal amount of generated waste; minimal amount of waste that cannot be reused; use of generated waste in the remanufacturing process for identical or different products; maximum extension of value provided by a product or a service; sharing a product or a service instead of purchasing it; option to repair the product or to return it to the market; recycling to bring back resources in the production process and create new values in the most efficient way; and establishing networks between those that generate waste and those that use it as a resource.

Implementing the circular economy principles when designing and manufacturing products, materials and components that can be reused, remanufactured and recycled, opens a wide range of opportunities for the private sector to speed up the innovations and jumpstart development without jeopardizing the environment. In this journey, the contribution of all direct stakeholders in the circular process is of utmost importance. However, each individual member of society can also help with the transition to circular manufacturing by choosing and using "green" products and services.[48]

[48] Matić, J (2019): Manual for Circular Product Design. UNDP, Belgrad

By-products

The Ministry of Environmental Protection made significant progress by adopting the Rulebook on the status of by-products, which allows the industry to use waste as raw material or consumer goods. The Rulebook defines the conditions under which the materials that remain after the production process can be treated as by-products, as well as the appropriate technical requirements for by-products, and the possibility for companies to trade with these materials in the domestic market.

Textile industry

There is very little data about the lifecycle of textile products and textile waste, as well as about how this waste is managed in the Republic of Serbia. According to the Serbian Chamber of Commerce, there are 1,800 registered textile manufacturers. The available data for 2018 shows that on the whole territory of Serbia, the imported net weight of textile stood at 63,299.3 t in the form of fibre, yarn, fabric, woven and non-woven textile materials, which amounts to 0.33% of the total weight of imported textile and clothes. If we start from this net weight (63,299.4 t), bearing in mind that in Serbia the so-called base textile industry is nearly extinguished and that textile raw materials are now mostly imported, and taking into consideration that in the production process on average between 10 and 15% of material becomes waste, we can roughly assess that in Serbia, in 2018, there were between 6,000 and 9,500 t of generated post-industrial textile waste.[49]

Good practice example:

RETEKS[50] – This idea started as an initiative to solve the issue of textile waste with economic value. It was created as a project for economic empowerment of women in vulnerable social positions in Užice. The raw materials for production are obtained through an organized network for collection and donations
RETKES is a service for collection and donations. In its manufacturing plant, it has a redesign workshop for used textile, making various new products. RETEKS also has a development part of their plant, in which textile fibre is produced.

Good practice example:

The company Boreal and the Faculty of Forestry have started a project to develop circular wood products. Through a workshop that lasted for several months, they implemented six ideas in practice. Their collaboration was focused on designing small useful items, such as office supplies holders, which they made of wood residue from the production process. In this way, they achieved a higher rate of material use. Even if the wood was of high quality, due to its small dimensions, the residue would have been disposed of as waste or used for manufacturing products of lower value.

[49] Excerpt from the report: Radetić, M (2019): The Problem of Textile Waste in Circular Economy Development in the Republic of Serbia. UNDP, Belgrade.
[50] https://reciklazatekstilauzice.com/index.php/sr/

RECOMMENDATIONS:

- **Prepare an overview of the situation and necessary investments by analyzing the costs and benefits of transition to circular economy in the manufacturing industry, and then prioritize the manufacturing industry sectors through detailed (socio-economic) analyses.**
- **Introduce a tax policy that will have an impact on resource preservation by increasing the taxes on the use of resources, while reducing the certain aspects of taxes for companies that operate under the model of circular economy.**
- **Draft guidelines to introduce circular business models and tools into small and medium enterprises in different industry branches.**
- **Draft guidelines to create business partnerships and networks between different industrial sectors with the aim to optimize the use of resources and raw materials and reduce waste.**
- **By placing services instead of products in the market, the circular business model can change the manufacturing methods.**
- **Create a monitoring system for materials that are being used.**
- **Use alternative energy sources in a sustainable manner in the industrial manufacturing.**
- **At the national level, through competent institutions, promote trainings for company staff teaching them new skills and explaining the new business processes in the global market.**
- **Support the model of strategic partnerships between academia and the manufacturing industry in order to encourage innovations and development.**

AGRICULTURE AND FOOD

The Republic of Serbia has good natural conditions for developing diverse agricultural production. It is located in an advantageous region of the Northern hemisphere with four seasons and four climate areas, which makes it very suitable for agriculture. With its scope and structure of available agricultural areas, the Republic of Serbia stands among the European countries with favourable land resources, given that it has 0.7 ha of agricultural land, i.e. 0.46 ha of arable land per capita. At the same time, the ratio of areas with arable land and permanent crops and areas with meadows and pastures is better than in some European countries (71: 29%).[51] Serbia has a unique grid of canals that connects the rivers Danube and Tisa in Vojvodina, setting up a hydrotechnical system for irrigation and drainage in Vojvodina. Serbia's geography and climate are particularly suitable for the agricultural production of fruits, wheat, corn and oil-producing plants. All these sectors are oriented towards export, which is why the state should undertake measures to improve and modernise agriculture by providing different incentives to agricultural producers.

Good practice example:
Eko fungi is a company specialized in organic production, using solely biomaterials in a zero-waste model, to develop technological processes in the food industry of growing mushrooms. In the process of growing mushrooms, coffee waste is an important resource.

Food surplus and food waste

Every year, around one-third of food produced worldwide for human consumption (approximately 1.3 billion tonnes) is wasted[52], while at the same time around 1 billion people in the world are starving[53]. **There is no precise data about the food surplus in Serbia.** However, some assessments suggest that 250,000 tonnes of food are wasted every year[54], whereas one in eight persons in the country is living with the risk of poverty. If the food surplus were appropriately distributed, this amount of food would be enough to feed the starving.

Apart from social and ethical aspects, the issue of food surplus is also important for environmental protection. The production, distribution and storage of

[51] Strategy of Agricultural and Rural Development of the Republic of Serbia for the period from 2014 to 2024 (Official Gazette of Republic of Serbia, no. 85/2014).
[52] http://www.fao.org/save-food/resources/keyfindings/en/
[53] http://www.fao.org/food-loss-and-food-waste/en/
[54] http://www.wwf.rs/?uNewsID=350492

food use a lot of natural resources, while at the same time food waste contributes to climate change (food waste generates around 8% of the total amount of GHG emissions by itself). This is why the issue of sustainable food waste management is equally important from the social, environmental and economic perspective. The EU Circular Economy Action Plan from 2015 identified food waste prevention as one of its priority areas. Furthermore, food waste is one of the ten main indicators of the Framework for Monitoring of Circular Economy because it indicates how far we have progressed in transition from the linear "produce-use-discard" approach to the principle of circularity in which the resource loss is minimized.[55]

According to the European Agency for Environmental Protection, the main source of food waste are households (42%), followed by food processing and production plants (39%), hotels and restaurants (14%) and, finally, wholesale and retail stores – grocery shops, supermarkets and megamarkets (5%).[56] However, it should be underlined that food waste is present in all segments of food production.

The Law on Waste Management defines food waste as "communal biodegradable waste". This imprecise legal definition of food waste is creating obstacles in its proper management.[57]

Prevention of food waste generation

PWhen it comes to the shelf life of food, Article 23 of the Rulebook on Declaration, Labelling and Marketing of Food (Official Gazette of Republic of Serbia, no. 19/2017 and no. 16/2018) introduces the differences between the notion of "expiry" date and the notion of "best before" date. It is expected that these legal provisions will allow a better use of food surplus for human and animal consumption, and that they will contribute to the prevention of food waste generation.

In the latest amendment of the Food Safety Law (Official Gazette of Republic of Serbia, no. 41/2009 and 17/ 2019), Article 26 states that "the Minister, with the approval of the minister competent for healthcare, defines in more detail the conditions for processing, handling, storaging and keeping of certain types of food labelled with 'best before' date".

To implement these provisions, it is necessary to accordingly amend the Rulebook on Declaration, Labelling and Marketing of Food so that it allows the selling and donation of food after the expiry of the "best before" date, if the food is safe for consumption

[55] https://europa.eu › press-release_IP-19-2391_en
[56] https://www.eea.europa.eu/media/infographics/wasting-food-1
[57] Report developed within the project Circular Economy Platform for Sustainable Development in Serbia: Guidelines for Prevention and Reduction of Food Waste Generation and Improvement of the Food Donation System.

In addition, in order to assure a clear implementation of these rules, guidelines on how to manage products after the expiry of the best before date should be developed. It is important that the buyers and consumers are clearly informed that the minimal shelf life of food has expired, but that the food is still safe for consumption.[58]

Serbia should look up to the EU countries that have developed the list of products in four categories, from very long shelf life to short shelf life. It should introduce such a list in its legal framework, in order to reduce food waste caused by expiry date.

Therefore, food products can be labelled with:
Very long shelf life
Long shelf life
Limited shelf life
Short shelf life

Good practice example:
In partnership with Delhaize Serbia and with the participation of the NGO Food Bank Belgrade, UNDP is developing an online platform that will allow humanitarian organizations to take discarded fruits and vegetables from this company's stores. The fruits and vegetables must meet all the criteria of products suitable for donation, and the aim is to provide food to the organization's beneficiaries. The platform will be based on the blockchain technology, which contributes to security, traceability and better connectedness of the entire process. It will allow the distribution of surplus of discarded fruits and vegetables, along with the information about the food, documenting the complete history of each individual piece. The platform will allow traceability and monitoring of the complete history of activities, and once a transaction is made, no modifications will be allowed. This architecture allows the use of a blockchain database and its features.

The provisions of the Law on Value-Added Tax[59] that refer to tax exemptions for the "expense" of food of which the shelf life has expired must be harmonized with waste management policies, which means that waste generation should be prevented through donating food instead of destroying it.

[58] Report developed within the project Circular Economy Platform for Sustainable Development in Serbia: Guidelines for Prevention and Reduction of Food Waste Generation and Improvement of the Food Donation System.

[59] Official Gazette of Republic of Serbia, no. 84/2004, 86/2004 - corr., 61/2005, 61/2007, 93/2012, 108/2013, 6/2014 – harmonized amount in RSD, 68/2014 – other law, 142/2014, 5/2015 - harmonized amount in RSD, 83/2015, 5/2016 - harmonized amount in RSD, 108/2016, 7/2017 - harmonized amount in RSD, 113/2017, 13/2018 - harmonized amount in RSD, 30/2018, 4/2019 - harmonized amount in RSD, 72/2019 and 8/2020 - harmonized amount in RSD

RECOMMENDATIONS:

- **Build a value chain between the food industry and agriculture as producers of raw materials (farmholds, collectives, agricultural companies).**
- **Promote business operations such as clusters and collectives with the aim to develop a relationship between the agricultural producers and the food processing industry.**
- **Strengthen the economic and market connection between suppliers and producers in agriculture and other industries that use agricultural products for production in the food processing industry, as well as the connection with producers that are agricultural suppliers.**
- **Promote export-oriented organic production as an economic potential of the Republic of Serbia.**
- **The main condition to improve food waste management in the Republic of Serbia is to regulate the legal framework for food donations. This includes defining the responsibilities of donors and mediators in the food donation chain; regulating food donation for animals; regulating the register of mediators and beneficiaries; and regulating the VAT issues for donated food.**
- **Build the capacity of Food Bank.**
- **Amend the regulations on food labelling and marketing (which will allow selling and donating food after the expiry of the "best before" date) and implement awareness-raising activities to inform the public about the importance of food donations.**
- **Regulate the legal framework for food surplus management by:**
  - **Defining responsibilities and roles of donors, and**
  - **Establishing the manner of food surplus redistribution in different sectors.**

PLASTICS AND PACKAGING

In line with the global pressure to solve the issue of single-use plastics, the problem of single-use plastic packaging is on the list of priorities for circular economy transition. In Serbia, the key challenge is the plastic packaging, which is the largest individual sector of plastic consumption. Plastic packaging waste can be found both in commercial-industrial and communal waste flows. **In 2016, in Serbia, the production of packaging amounted to 45.3%** of the total number of plastic items produced.[60]

In June 2019, the Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment was adopted. It introduces new rules to reduce and limit the use of single-use plastic products. The member states have the obligation to fully transpose the requirements from this Directive into their national legislation by 2021. The goal of this Directive is to prevent and reduce the impact of single-use plastic products and to encourage transition to circular economy by involving innovative and sustainable business models, products and materials.

Similarly to the EU member states, **in the circular economy transition process in Serbia, the biggest challenge will be adapting the industry that manufactures plastic packaging.** The competent institutions in the Republic of Serbia should be familiar with the European Commission's guidelines on single-use plastic products, so that they can inform the single-use packaging manufacturers and those who participate in the usage chain of this packaging about their obligations. Exchange of information, training and seminars as a way to establish connections with the European and global associations dealing with the issue of single-use plastic products would provide significant support in the transition process. A particularly straining challenge awaits the manufacturers of plastic bags, single-use packaging for fast food, boxes for cold or hot food, and containers for fresh or processed food that does not require further processing, such as fruit, vegetables or sweets. The European Commission is preparing guidelines on single-use plastic products which will be mandatory for Serbia as well.[61]

[60] Janković, E (2019): Guidebook for Reducing the Environmental Impact of Single Use Plastic Products (2019). UNDP, Belgrade. https://www.rs.undp.org/content/serbia/sr/home/library/environment_energy/vodi_-za-smanjenje-uticaja-plastinih-proizvoda-za-jednokratnu-up.html

[61] Janković, E (2019): Guidebook for Reducing the Environmental Impact of Single Use Plastic Products (2019). UNDP, Belgrade. https://www.rs.undp.org/content/serbia/sr/home/library/environment_energy/vodi_-za-smanjenje-uticaja-plastinih-proizvoda-za-jednokratnu-up.html

Prohibition of plastic bags
The City of Belgrade amended the Decision on Terms of Use of Plastic Shopping Bags in Stores. This amendment entered into force on January 1st 2020. Article 2 of the amended Decision foresees that in the retail stores and other service-providing facilities retailers shall have the obligation to limit the use of very light plastic bags and gradually reduce the use of light plastic bags, according to the Programme of Prevention Measures for Plastic Bags Waste Generation. The implementation plan for this Programme is an essential part of this Decision.

With their new technologies and technological processes, the circular business models should provide a sustainable solution for eco-friendly packaging (primarily for food), which would replace the plastics. In this process, it is necessary to establish coordination and networking between manufacturers and technical and scientific institutions, as well as to develop a design system for packaging and plastics.

Good practice example:
BIG BAMBOO is a product brand created through a modern approach to healthy lifestyles.

The BigBamBoo products are created for people who want to provide their families with a wide range of dishes for food and daily use that are made of bamboo, a plant of extraordinary characteristics. The BigBamBoo products are eco-friendly, biodegradable and sustainable. They are firm and lightweight, and their unique design and ergonomic shape make them suitable for all kinds of use.

This company brings to the market eco-friendly, multi-use dishes made of bamboo for infants, children and adults.

RECOMMENDATIONS:

- **Inform all the stakeholders (manufacturers and consumers) and institutions about the obligations to solve the issue of single-use plastics in the context of Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment.**
- **Amend and harmonize the regulations for plastic waste management in the Republic of Serbia.**
- **Introduce subsidies and tax incentives for manufacturers of innovative packaging that use eco-friendly materials instead of plastic.**
- **Involve academia in an attempt to find technological solutions for the production of biodegradable plastics.**
- **Implement a continuous media campaign about the environmental consequences of single-use plastics which will be funded by the manufacturers of plastic packaging, in line with the "polluter pays" principle.**
- **Introduce economic measures for consumers of single-use plastic packaging.**
- **In practice, implementation requires a good baseline analysis of the current situation, which would particularly focus on manufacturers of single-use plastic packaging while also analyzing the generation, collection and recycling of this type of waste.**
- **In practice, it's necessary to establish a management system for ship waste, defining how it will be handled in ports – because of its possible impact on our rivers, and in order to avoid the transmission of plastic waste pollution to seas and oceans.**
- **It is necessary to develop a specific implementation plan for the Directive 2019/904, which will precisely define the gaps in our legislation and the manners to transpose the provisions of this Directive. This plan should provide a detailed overview of the current situation regarding the manufacturing of single-use plastic products, as well as an overview of the existing system of plastic packaging waste management.**

CONSTRUCTION

Globally, 1.3 billion tonnes of solid waste is produced every year. Building materials account for half of the solid waste generated worldwide, according to The World Bank.[62] **The construction sector is a bank of material that can be re-used for construction purposes**.[63]

It is important to identify two segments in this sector:
1. Construction with the use of eco-friendly materials and the role of circular design,
2. Debris from demolition and construction.

In the Republic of Serbia, debris waste stands for a significant amount of both communal and hazardous waste (construction material containing asbestos, PCB or lead in wood paint).

According to the reports of the Agency for Environmental Protection, the recycling of debris hasn't been established in the Republic of Serbia to date, even if 80% of construction waste can be recycled. The amounts of waste reported to the Agency for Environmental Protection do not reflect the reality in the field, given that the procedures between the competent ministries have not been fully aligned and harmonized. This is the reason why we cannot come up with an exact figure for this type of waste.

END-OF-LIFE SCENARIOS

What happens to a building's structural frame once it is demolished?

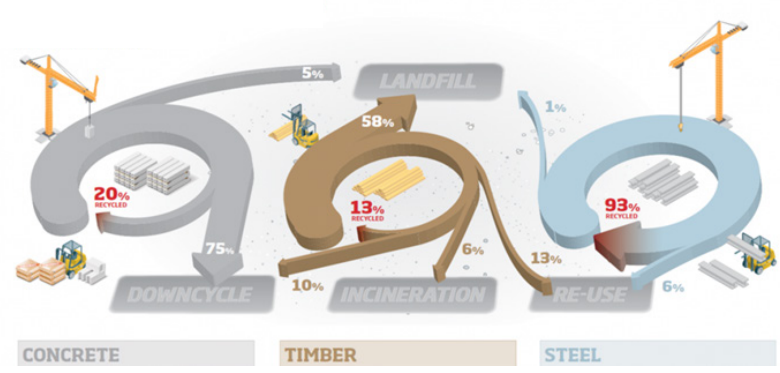


Image 8:
The end of lifecycle scenario for construction material.
Source: https://www.steelconstruction.info/Life_cycle_assessment_and_embodied_carbon

[62] https://circularconstructionchallenge.org/
[63] See Image 4.

Another thing to note is that **in the Republic of Serbia, there are no landfills for construction waste, so this type of waste is mixed with others**. This should not be seen as a shortcoming, and Serbia should not think about investing into landfills – on the contrary, the country should consider the opportunities to develop this sector through circular business models, in order to find an adequate way of resource management. This is why it is necessary to pay special attention to the construction sector in terms of development and promotion of circular business models.

Good practice example: FEPLO[64]

Some construction companies have introduced the green energy passport standards in their newly constructed buildings.

FEPLO is a Serbian company manufacturing waterproof eco-panels that are used as construction material for rooftops and floor construction. To manufacture the waterproof panels, they use the carton packaging from communal and packaging waste, while instead of glue they add 10% of mouldable polymers. These panels have a wide range of use, as they're employed for rooftops, floors, walls and flooring. They are used as an alternative to wooden products that fulfil the same role.

RECOMMENDATIONS:

- **Harmonize the procedures for monitoring of construction waste and materials between the different competent ministries (Ministry of Construction, Transport and Infrastructure; Ministry of Environmental Protection),**
- **Establish dialogue between the competent institutions and representatives of the construction sector, with the goal to come up with transition measures for circular business models,**
- **Enact the legal framework regulating waste management in the construction sector,**
- **Promote sustainable construction and use of eco-friendly materials,**
- **Adapt and reconstruct buildings in line with the zero-waste model and the circular economy principles.**

[64] http://www.feplo.rs/proizvodi.html

6 INSTEAD OF A CONCLUSION

6.1. DEVELOPING THE TRANSITION PROCESS TO CIRCULAR ECONOMY

Based on the given examples, the presented business models, and the explained need for transition to circular economy, in the text below we will provide our recommendations for future steps of the main stakeholders (decision-makers, economy sector, industry and wider public).

The recommendations given here should be seen as guidelines that need further consideration and development. When defining the new public policies in line with the circular economy principles, it will be necessary to have a holistic approach.

It is necessary to establish a social consensus about the transition to the circular economy model as a national priority.

The Circular Economy Roadmap is a process, which is why we should continue with the consultations to develop it further, both concerning stakeholders' roles and the identified priority sectors and other sectors, providing recommendations for its implementation.

In line with the Roadmap for Circular Economy in Serbia, the Communication Plan of the Circular Economy Roadmap and the Circular Transition of Serbia was developed.

6.2. FIVE MESSAGES FOR FURTHER DEVELOPMENT

1. **Transition to circular economy will contribute to faster economic growth, a higher degree of wellbeing and improved health of all citizens and future generations.**

2. **Serbia cannot become a member of the EU without changing its policies and sustainably using its resources, while meeting the international obligations that it has accepted – implementing the circular economy principles offers the opportunity for a faster EU accession process.**

3. **It is necessary to have a systemic approach to development, creation and implementation of sustainable resource policies and transition to circular economy business models.**

4. **Changing the energy policy and promoting renewable energy sources is part of a successful systemic and strategic transition.**

5. **The institutional support and involvement of all identified circular economy stakeholders will guarantee continuity and efficiency in the circular transition process, once it begins.**

7

ANNEX

7.1. OVERVIEW OF STATISTICS THAT SUPPORT THE CIRCULAR ECONOMY TRANSITION

According to the National Statistical Office and the adopted Industrial Strategy and Policy for the period 2011-2020[65], the projected growth of the processing industry was set at 7.3% - however, the achieved growth amounted only to 2.3%. Out of the total export of goods, instead of projected 50%, only 33% was realized, whereas the investments in capital assets were planned at 9.7% and implemented at 5.5%.

Data of the National Statistical Office given below shows the flow of materials from natural resources used in the manufacturing industry, including extracted resources and other primary raw materials from nature, as well as data on the cross-border movement of materials (export and import).

The amount of domestic extracted resources[66] in 2018 stood at 114,585 thousand tonnes, which is by 4.9% higher than in the previous year. When it comes to types of materials, the largest categories of extracted domestic resources were biomass (40,682 thousand tonnes) and fossil fuel (38,885 thousand tonnes).

Overview of domestic consumption in 2018, according to sectors[67]	Percentage in comparison to 2017
Agriculture, forestry and fishing	Drop of 2.4% (compared to the previous year)
Mining	Growth of 0.6% (compared to the previous year)
Processing industry	Growth of 6.9%.
Electricity, gas and steam supply	Drop of 1.0%,
Water supply and waste water management	Growth of 17.8%,
Construction	Growth of 4.4%
Service provision	Drop of 1.9%

In 2018, the import of materials68 stood at 18.593 thousand tonnes, which is by 2.8% higher than in 2017. The most imported categories of materials were fossil fuels (39.9%) and metal ores (24.2%). The export of materials in 2018 stood at 14,328 thousand tonnes, which is by 6.3% higher than in the previous year.

[65] Republic of Serbia, Government of the Republic of Serbia: Strategy and Policy of Industrial Development for the Period of 2011-2020 (Official Gazette of Republic of Serbia, no. 55/2011).
[66] National Statistical Office of the Republic of Serbia (2018): Indicators of Material Flows https://www.stat.gov.rs/sr-cyrl/vesti/20191205-indikatori-materijalnih-tokova-2018/
[67] National Statistical Office of the Republic of Serbia (2019): Environmental Statistics, ISSN 0353-9555
[68] National Statistical Office of the Republic of Serbia (2018), Indicators of Material Flows, https://www.stat.gov.rs/sr-cyrl/vesti/20191205-indikatori-materijalnih-tokova-2018/

The biggest amounts of exported materials were in the categories of biomass (47.0%) and metal ores (18.5%). In the waste sector, Serbia is both an importer and an exporter.

- Metal: export: 211,046 t, import: 23,931 t same category and composition,
- Plastics: export: 6,397 t, import: 15,744,
- Glass: export: 18,712 t, import: 278 t,
- Paper and cardboard: export: 73,390 t, import: 127,212 t,
- Textile: export: 529 t, import: 749 t.

The productivity of resources – the ratio between GDP and domestic consumption of materials – stood at 31.4 RSD per kilogramme in 2018, which is by 0.04% higher than in 2017. This means that the growth of consumption of materials was lower than the growth of GDP in comparison to the previous year.

7.2. ANNEX 2: OVERVIEW OF RECOMMENDATIONS OBTAINED AFTER CONSULTATIONS WITH REPRESENTATIVES OF THE SERBIAN ECONOMYE

Within the project Circular Economy Platform for Sustainable Development in Serbia, consultations with representatives of the private sector were held, discussing how to overcome the obstacles perceived on Serbia's journey towards circular economy, according to sectors. Their recommendations were collected and presented here. They mostly focus on daily business and the need for systemic changes that they expect the state to implement. The private sector acknowledges that there is a lack of awareness in its ranks about the need to join forces and create symbiotic systems that are necessary for a better exchange of materials in line with the circular economy principles.

SUMMARISED INFORMATION, ACCORDING TO SECTORS:

Wood furniture industry

- Change the system to calculate the fee for environmental protection: instead of calculating the environmental fee per square metre for business facilities, calculate this fee per amount of communal waste generated by the production plants.
- Improve the technology to use wood waste from wood processing in the plants themselves.
- Improve the legal framework in order to achieve a higher recycling percentage and introduce the obligation to reduce communal waste in production plants.

- Establish an organised system for collecting wood waste from citizens.
- Build the capacities of social enterprises that deal with wood waste collection from households.
- Introduce an innovative model of institutional support for the sector of wood furniture manufacturing.
- Reduce the price of industrial electricity.
- Promote the introduction of FSC certificates that guarantees that wood reaches the final users by means of a strictly monitored chain, from a certified forest, to processing and manufacturing.
- Enact regulations that define the conditions to retrieve wooden materials from the river bottom.
- Raise awareness about the need for manufacturers within the wood industry value chain to join forces, explaining the advantages that this would give: better instruments to secure payments and establishing of trust.
- Regulate the conditions for the manufacturing pellets that would not jeopardize the amounts of raw materials for manufacturers of panels.

Textile industry

- Improve the infrastructure and develop collection networks for textile waste on the whole territory of the Republic of Serbia.
- Improve the Law on Waste Management in the part that concerns textile waste, and regulate the goals and monitoring methods of this waste flow through by-laws.
- Introduce better production planning, without piling up of goods and subsequent burning of unsold pieces of clothing.

Plastics

- Raise the capacities of public utility companies so that they can offer basic recycling infrastructure.
- Increase the number of recycling containers.
- Harmonize the administrative processes.
- Introduce control and fees for disposal of unprocessed waste in landfills.
- Improve the monitoring system from the moment of placing a piece of packaging in the market until the moment it becomes waste.

Food / organic waste

- Raise the capacity to donate food surplus, by focusing on organisations such as Food Bank.
- Build a sustainable system for donating food surplus.
- Insist on the importance of monitoring and tracing systems in the food chain.
- Build the infrastructure for organic waste recycling (apart from meat and milk, organic waste ends up in landfills).
- Introduce VAT returns for donations of food surplus.
- Solve the issues of food surplus by improving the legal provisions on separate

collection and treatment of organic waste.
- Introduce better production planning and storage of goods in stores with the aim to reduce surplus.
- Strengthen the infrastructure for further waste treatment of food that is no longer suitable for consumption.
- Maximize the use of capacities of the existing biogas production plants.
- Establish an organized system and appropriate infrastructure to collect biomass for energy-related needs.
- Raise public awareness about the different opportunities to use biomass, which would increase its consumption and help develop the market.
- Pay heed to the lack of regulations that treat the beer industry organic waste (barley waste) as potential cattle feed.

Education

Along with "cooperation" and "networking", the most frequently used word during the consultations with the private sector was "education", which was highlighted as the important condition for raising awareness and developing circular production, consumption and culture in Serbia:
- Initiate a public national campaign to promote circular economy in Serbia.
- Launch the circular economy education initiative in Serbia, and coordinate the content according to age and target groups.
- Secure stronger institutional support to formal and informal educational systems and initiatives on the topic of circular economy.
- Encourage the private sector to educate the citizens through campaigns, actions, and activities at conventions and festivals.
- Increase the flexibility of the formal education system so that the curriculum can include projects in the circular economy domain.
- Establish a network of education initiatives in the circular economy domain.
- Develop education models for children and youth.
- Edit and publish educational material on circular economy and circular culture.

During the development of this Roadmap, as part of the Cirkulaton workshop that took place in May 2019, consultations were held with representatives of the relevant professions that were identified by the participating stakeholders. The conclusions reached there are used to plan future steps.

Recommendations for decision-makers:

1. Define the circular economy as a strategic goal for the economic development of Serbia and include it in the draft text of the Ten Years Development Plan of Serbia.
2. Prepare an action plan of activities for further development of the Roadmap, setting up the necessary changes for transition to circular economy.

3. By promoting green public procurement, revise the fiscal policy in Serbia with the aim to preserve its natural resources and environmental independence and security.
4. Consider introducing subsidies to promote circular business models.
5. Develop the cooperation between science and industry, and support the transition of science to meet the needs of industrial development.
6. Establish a continuous dialogue with representatives of the business sector, as the bearers of change.
7. Create methodologies for monitoring of circular economy business models implementation.
8. Promote investments through circular economy business models.
9. Promote the activities that Serbia has implemented in the context of circular economy.

Recommendations for companies:

1. When creating a product, insist on circular design.
2. Focus on eco-design in the context of sustainable business opportunities.
3. Apply for grants for circular economy projects.
4. Continuously improve the procedures and standards in the context of sustainable business.
5. Use the blockchain technology for everyday operations.

Recommendations for citizens:

1. Promote saving of resources and changes in how raw materials are used.
2. Invest in circular infrastructure that will be beneficial both for citizens and their communities.

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