

ENVIRONMENTAL AND ECONOMIC ADVANTAGES OF CIRCULAR GREEN WASTE MANAGEMENT

Dragan Ugrinov¹, Magdalena Nikolić²

¹University of Economics Academy, Faculty of Europe "Kallos", Ratarski put no.8a, 11000 Belgrade, Serbia, E-mail: ugrinov.dragan@gmail.com

²The Academy of Applied Studies Polytechnic, Katarine Ambrozić 3, Belgrade, Belgrade, Serbia, PhD, E-mail: magdalena.nikolic@fim.rs

Abstract: This paper examines the circular management of green waste as a crucial component of sustainable development, balancing environmental protection and economic efficiency. Through the analysis of the ecological and economic benefits of the circular economy, the paper emphasizes the importance of recycling, composting and reducing greenhouse gas emissions. Green waste is considered a valuable resource for producing compost and biogas, which can contribute to soil regeneration and biodiversity conservation, while simultaneously reducing pressure on landfills and extending their lifespan. In addition to environmental benefits, circular practices offer significant economic advantages, including reduced waste treatment costs and the creation of new markets for eco-friendly products. Case studies from European cities such as Vienna, Amsterdam and Stockholm show successful applications of circular practices in green waste management, while Serbia and other developing countries face challenges in implementing these practices, including lack of infrastructure, legislative barriers and low citizen awareness. The paper focuses on key challenges and recommendations for improving existing systems, including investment in infrastructure, development of the legislative framework and education of citizens. It also considers the potential for further development of circular practices in Serbia and other developing countries through innovation, international cooperation and financial incentives. The circular economy in green waste management can become the foundation for a more sustainable and economically efficient system, reducing the ecological footprint and opening opportunities for the development of new markets and jobs.

Key words: circular economy, green waste, recycling, composting, biogas, environmental benefits, economic benefits, sustainable development.

INTRODUCTION

In modern society, waste management represents one of the key challenges in the context of sustainable development. With the constant increase in urbanization and the intensification of industrial production, the amount of waste produced in large cities, as well as globally, is continually growing. A particularly significant part of this problem is green waste, which consists of plant material, such as plant remains, grass, leaves, branches, and other biological waste [1]. Although often perceived as a "lighter" type of waste, green waste has the potential to cause serious environmental and economic problems if not treated effectively. Depositing green waste without processing can lead to the creation of methane, a gas with a greenhouse effect, which significantly contributes to global warming [2]. Given these challenges, effective management and treatment of green waste becomes imperative to reduce its negative impact on the environment [3]. The circular economy, which is based on the principle of a closed loop of resources, represents an innovative approach to solving the problem of waste, including green waste. This concept opposes the traditional linear model of production and consumption, which implies "take, use, throw away" [4]. Instead, the circular economy strives to conserve resources through reuse, recycling and waste reduction. In the context of green waste, the circular approach implies its conversion into useful products, such as compost, biogas, or energy, thereby reducing the need for landfill and contributing to ecosystem sustainability [5]. One of the key goals of the circular economy in the treatment of green waste is not only the reduction of its negative impact on the environment, but also the creation of new economic value. By using innovative methods such as composting, anaerobic digestion or biogas production, green waste can be turned into useful resources that have commercial value.

Recycling green waste not only contributes to the conservation of natural resources but also reduces the emission of greenhouse gases, thereby reducing global warming [6]. The ecological benefits of applying circular practices in green waste management include reducing the amount of waste in landfills, reducing the emission of methane and other harmful gases, as well as enriching the soil with compost that improves its quality and fertility [7]. Economic benefits, on the other hand, can be realized through the reduction of waste processing and disposal costs, as well as through the commercial use of recycled materials, which contributes to the development of new green markets and business models [8]. Also, such an approach can contribute to the creation of new jobs in industries related to recycling and biogas production, which is particularly reflected in the development of local communities [9].

This paper explores the environmental and economic benefits that can be realized by implementing circular practices in green waste management, analyzing the impact of recycling and composting on reducing harmful gas emissions, as well as the long-term benefits for the economy and the environment. Understanding these aspects has a key role in guiding future waste management policy and strategy, not only at the global, but also at the national and local levels.

MATERIAL AND METHODS

Theoretical framework

Definition and basic principles of the circular economy

The circular economy (CE) is an economic model based on the principle of "closed loop", in which resources, products and materials remain in the economy as long as possible. This approach opposes the traditional linear model of production and consumption, which is based on the "take, use, throw away" model. A circular economy, on the other hand, tends to eliminate waste, maximize the use of resources, and encourage reuse, recycling, and regeneration of products and materials [4]. Key principles of the circular economy include:

1. Sustainable product design - products are designed in a way that allows long-term use, easy repair, recycling and reuse.
2. Reuse and recycling - instead of disposing of waste materials, they are reused or recycled into new products.
3. Disintegration into nature - use of materials that are environmentally friendly and can be decomposed naturally.
4. Sharing and redistribution - promoting a model of sharing resources and products that can be used by multiple users, thus reducing the need for new products [10].

The circular economy creates new value by minimizing the need to extract new resources and reducing negative environmental impacts, while at the same time contributing to economic development through innovation and green technology.

Overview of existing research and global initiatives related to circular green waste management

Green waste, which consists of plant residues, leaves, grass, branches and other plant materials, has the potential to become a significant resource if treated according to the principles of the circular economy. Globally, many countries and cities are implementing strategies for efficient green waste management, with the aim of reducing greenhouse gas emissions and reducing pressure on landfills. According to research, circular practices in green waste management can significantly contribute to the reduction of methane emissions, which are created in landfills, as well as to the increase of resource efficiency through composting and biogas production [8]. Case studies, such as the Vienna and Amsterdam programs, demonstrate how circular approaches can enhance green waste management. In Vienna, more than 40% of all municipal waste is recycled. The city has implemented a system for collecting and composting green waste, thereby reducing pressure on landfills and creating high-quality compost for agricultural use [11]. Similar programs in Amsterdam use green waste to produce biogas that is later used to generate energy [5]. Global initiatives, such as the Global Waste Management Outlook organized by UNEP (United Nations Environment Programme), encourage countries to focus on circular waste management, including green waste. The

European Union also provides guidance on waste management through various regulations and directives that promote a circular economy, such as the Circular Economy Action Plan [2].

RESULTS AND DISCUSSION

Overview of existing legislative frameworks in the EU, Serbia and other relevant countries

In the European Union, the legislative frameworks governing waste management largely support the principles of the circular economy. In 2020, the European Commission adopted the Circular Economy Action Plan, which includes specific measures for municipal waste reduction, recycling, and reuse of materials, and green waste is recognized as a key element in achieving these goals. Directives such as the Waste Framework Directive (2008/98/EC) and the Landfill Directive (1999/31/EC) call on member states to develop systems to reduce landfilling and increase recycling [2]. In Serbia, the legislative framework for waste management includes the Law on Waste Management, which is aligned with European regulations, but there are also challenges in implementation. There are initiatives to improve recycling and composting, but the green waste management system is still underdeveloped. In some cities in Serbia, such as Belgrade and Novi Sad, there are pilot projects promoting composting and recycling of green waste, while existing laws still do not fully recognize the economic potential of this industry [12]. In many developed countries, such as Sweden, the Netherlands, and Denmark, waste legislation is much more rigorous and includes economic incentives for recycling and landfill reduction. For example, Denmark has implemented tax breaks for companies that use recycled materials, while Sweden uses advanced technologies to produce energy from green waste [9].

Environmental benefits of circular green waste management

Reducing greenhouse gas emissions through recycling and composting green waste
One of the most important environmental aspects of circular green waste management is the reduction of greenhouse gas emissions, especially methane (CH₄). Methane is one of the most harmful greenhouse gases, with a global warming potential that is 28 times more potent than carbon dioxide over 100 years [6]. Through proper green waste management, recycling, and composting, this green waste can be converted into useful resources, and methane emissions are significantly reduced. Composting is a particularly efficient process because it allows for the aerobic decomposition of plant material, which reduces the generation of methane that is produced under anaerobic conditions, such as in landfills. In European countries such as Germany and the Netherlands, the implementation of green waste collection and composting systems has reduced methane emissions from landfills by more than 20% [8]. Research also shows that composting can contribute to reducing carbon dioxide emissions in the soil, as composting helps to fix carbon dioxide in the soil, thereby reducing its negative impact on the atmosphere [7].

The role of green waste in soil regeneration and biodiversity conservation (composting, mulching)

Green waste plays a key role in soil regeneration, improving soil fertility and preserving biodiversity. Composting and mulching, the two main processes for treating green waste, have numerous environmental benefits, especially in agriculture and urban areas.

Composting enriches the soil with nutrients and microorganisms, improving its structure and moisture. Due to its high organic matter content, compost helps improve soil drainage, reduces erosion and increases the soil's water-holding capacity, which is especially important in areas with dry periods [1]. Compost is also rich in nitrogen, phosphorus and potassium, making it extremely useful for improving soil fertility, thus reducing the need for the use of artificial fertilizers, which can be harmful to the environment [5].

Mulching, which is often used as a way to treat green waste, has similar benefits. This process involves placing a layer of organic material, such as grass clippings or leaves, on the soil surface. Mulch helps reduce evaporation, suppresses weed growth, improves soil structure,

and helps conserve moisture in dry conditions. The use of mulch in urban areas can also contribute to the preservation of biodiversity, as it increases the number of plant and animal species that can survive in such an environment [11]. In addition, composting and mulching reduce the need for chemical pesticides and fertilizers, which directly affects the preservation of biodiversity. Reduced use of chemicals makes the soil more suitable for plants, microorganisms, and insects, thereby contributing to the preservation of the local ecosystem [4].

Reducing landfill burden and extending their lifespan

Landfills pose a major environmental challenge, as they occupy large areas of land and cause significant pollution, including the emission of greenhouse gases such as methane. One of the key objectives of circular green waste management is to reduce the amount of waste going to landfills, thereby extending their lifespan and reducing the need to build new landfills. According to the European Commission, green waste makes up a significant portion of the total municipal waste generated in cities. By recycling and composting green waste, landfill capacity is drastically reduced. In Belgium, for example, by implementing a system for collecting green waste and processing it into compost, the landfill burden was reduced by 25% [3]. Reducing the landfilling of green waste not only helps reduce the burden on landfills, but also contributes to reducing emissions of pollutants, such as heavy metals and toxins that are produced by the decomposition of waste in landfills [9]. By using technologies such as biogas, which can be produced from green waste, it is possible to create renewable energy sources and further reduce the need for fossil fuels [5].

Economic advantages of circular green waste management

Business models based on the circular economy: how businesses can profit from recycling green waste (e.g. selling compost, biogas)

The circular economy not only contributes to environmental protection but also creates new economic opportunities for companies that implement business models based on the recycling and reuse of resources. Businesses can profit by selling products obtained by recycling green waste, such as compost and biogas.

Composting green waste creates high-value products for agriculture, such as organic composts that improve soil quality and reduce the need for artificial fertilizers. In the EU, the compost market is growing, with recognizable businesses selling compost for agricultural and horticultural use [3]. Composting businesses can make a profit through direct sales of compost or in the long term through partnerships with farmers who are looking for sustainable alternatives to traditional fertilizers. In addition, biogas produced from green waste can be a source of renewable energy, allowing businesses to profit through the sale of energy or biogas. In addition, biogas produced from green waste can be a source of renewable energy, allowing businesses to profit through the sale of energy or biogas. Biogas production not only enables energy savings but also contributes to reducing dependence on fossil fuels. For example, Denmark has established successful models for the production of biogas from green waste, which has enabled the sustainable growth of the sector [5].

Savings through reduced landfill costs and lower waste treatment costs

One of the key economic benefits of the circular management of green waste is the reduction of disposal costs and the reduction of waste processing costs. Landfills are expensive to build and maintain, and in many cases pose a risk of soil and groundwater pollution. By implementing circular practices, such as green waste recycling, the amount of waste that ends up in landfills can be reduced, which directly reduces disposal costs and long-term landfill remediation costs. According to an OECD report (2018), waste management through circular practices can reduce landfill and recycling costs by up to 30%, thereby increasing the cost-effectiveness of the entire waste management system. In addition, by recycling green waste, companies can reduce the need to purchase new resources, which further reduces production and transportation costs. For example, cities such as Vienna use composting processes that reduce pressure on landfills and enable further investment in infrastructure projects [11]. These

savings not only help businesses reduce operating costs, but also support sustainability through resource optimization and pollution reduction.

Application of economic instruments (subsidies, tax breaks, ecological certificates) to encourage circular practices

In order to encourage the implementation of circular practices, governments and international organizations use economic instruments such as subsidies, tax breaks and environmental certificates. These instruments make it possible to reduce the initial costs for companies investing in green waste recycling and reuse technologies, which motivates them to engage in the circular economy. For example, subsidies for green waste processing companies can reduce the initial investment in infrastructure required for composting or biogas production. In some EU countries, biogas production projects are subsidized, thus encouraging companies to develop technology for the collection and recycling of green waste [2]. Also, tax breaks can encourage businesses to invest in sustainable practices, such as composting or using environmentally friendly materials, thereby reducing their environmental footprint. In many European countries, businesses implementing a circular economy can receive tax credits for using recycled materials or technologies that reduce pollutant emissions. Environmental certificates such as ISO 14001 or specialized certificates for recycled products allow companies to demonstrate their commitment to sustainability, which can improve their market position. Consumers and business partners are increasingly favoring companies that practice circular practices, thus opening up the market for "green" products. These economic instruments not only support companies in their efforts towards sustainability, but also create an incentive for the wider application of circular models in industries around the world [9].

Case studies

Case studies: Analysis of successful circular economy applications in green waste management

1. Global perspective and analysis of successful circular economy applications in European and global cities

The circular economy is becoming a key component of global strategies for reducing CO₂ emissions, regenerating resources and restoring ecosystems. Green waste management, which constitutes a significant part of municipal waste, has an important role in this process. Cities around the world are recognizing the importance of recycling and composting green waste, implementing innovative technologies that not only reduce pressure on landfills, but also contribute to sustainable energy production and agriculture. Vienna stands out as a leader in the application of the circular economy, intending to recycle 60% of its municipal waste, including green waste, by 2025. The city currently recycles 45-50% of green waste, while the rest is used to produce biogas and compost. Vienna uses recycled green waste to produce energy and organic fertilizers, which contributes to reducing CO₂ emissions [13]. Similarly, Amsterdam is implementing composting and biogas systems from green waste, achieving 50% recycling of municipal waste. The city plans to increase this rate to 65% by 2030, which will significantly reduce the burden on landfills and improve the circular model of waste management [14]. In Stockholm, the green waste recycling system includes the production of biogas, which is used for heating and electricity generation. Sweden has achieved recycling of 48% of municipal waste, including green waste, and plans further growth to 50-55% by 2030, which is part of a strategy to reduce CO₂ emissions [15].

Table 1. Ways to decrease green waste

City	Percentage of recycled green waste (%)	Technologies in use	Goals by 2030.
Vienna	45-50%	Composting, biogas, energy	60%
Amsterdam	50%	Composting, biogas	65%
Stockholm	48%	Biogas, energy	50-55%

Source: City of Vienna (2020). *Waste Management and Circular Economy in Vienna*. <https://www.wien.gv.at>; Amsterdam City Council (2020). *Circular Economy in Amsterdam*. <https://www.amsterdam.nl>; Stockholm Environmental Department (2020). *Sustainable Waste Management in Stockholm*. <https://www.stockholm.se>.

Global trends in green waste management

Global statistics show that many developed countries are making significant progress in recycling green waste. For example, the United States recycles about 35-40% of green waste, while China, the largest producer of green waste, only recycles 30% of green waste. On the other hand, Japan achieves an impressive 70-80% recycling rate, setting the standard for global green waste management initiatives [16].

Table 2. Global trends in green waste management

Country	Percentage of recycled green waste (%)	Year
EU (average)	40-50%	2020
USA	35-40%	2020
China	30%	2020
Japan	70-80%	2020

Source: United Nations Environment Programme (2018). *Global Waste Management Outlook*. <https://www.unenvironment.org/resources/report/global-waste-management-outlook>

Application of circular practices in Serbia

In Serbia, the circular economy in green waste management is still in the development phase, but there are initiatives in several cities. For example, Belgrade has started selective collection of green waste, while Niš and Kragujevac are working on implementing composting. Although there is progress, challenges such as lack of infrastructure, lack of standardized practices and insufficient investment in technology still hinder further development. Belgrade plans to expand the system for collecting green waste, and there are also initiatives to introduce biogas plants in the city's surroundings. Also, Niš and Kragujevac are working on pilot projects for composting, but the results are still not significantly visible. However, there is a growing interest in investing in sustainable practices and environmental projects, which could significantly improve green waste management in the future [17].

Table 3. Circular practices in Serbia

City/Region	Implementation of circular practices	Achieved goals	Challenges
Belgrade	Composting, biogas, selective collection	10-15% recycled green waste	Lack of infrastructure and investment
Niš	Composting, education of citizens	Initial goals set	Financial resources
Kragujevac	Composting, development of public system	Projects related to green waste at the beginning	Poor institutional support

Source: Ministry of Environmental Protection of the Republic of Serbia (2020). *Plan for waste management in Serbia*. <https://www.ekologija.gov.rs>.

The role of local communities and the private sector in the implementation of the system

Local communities and the private sector play a key role in implementing circular green waste management systems. Local authorities encourage citizens to separate green waste, and private companies can contribute to the development of technologies for biogas, compost and markets for ecological products.

In cities such as Vienna and Stockholm, private companies are collaborating with local authorities to efficiently produce biogas and compost. In Serbia, the private sector, although in the development phase, can become a key actor in improving the infrastructure for green waste management. Private companies can play a key role in introducing innovative technologies, while local authorities can provide financial support through subsidies and tax breaks.

Table 4. The local community role

Type of Actor	Role in implementation	Example
Local authorities	Encouraging citizens to recycle, waste separation, and education	Vienna and Stockholm
Private sector	Development of technologies for biogas, compost, and the product market	Waste management companies (Austria, Sweden)
Public institutions	Development of policies, regulations, and financial support	EU subsidies, tax breaks

Source: European Commission (2020). Circular Economy Action Plan.
<https://ec.europa.eu/environment/circular-economy>

Green waste management through the circular economy is a key component of sustainable development, both at the global and local levels. Global cities such as Vienna, Amsterdam and Stockholm are setting high standards in implementing circular practices, demonstrating that effective green waste management can lead to significant environmental and economic benefits. These practices reduce greenhouse gas emissions, increase renewable energy production through biogas, and contribute to soil regeneration through composting. Also, they reduce the load on landfills, thus extending their lifespan. Considering these successful examples, it can be concluded that the circular economy provides a unique opportunity for the transformation of waste management and the reduction of negative environmental effects. In Serbia, although there are initiatives at the local level, there are still numerous challenges in terms of infrastructure, institutional support and education of citizens. However, with appropriate investments in technologies and wider application of ecological practices, it is possible to significantly improve green waste management and contribute to the sustainable development of the country. Further development of circular systems in Serbia will depend on the integration of the private sector, local authorities, and citizens, who, through cooperation, could create a more sustainable and economically profitable waste management model.

Challenges and recommendations in the implementation of the circular economy in green waste management

1. The main challenges in implementing the circular economy in Serbia and other countries

The implementation of the circular economy in green waste management faces numerous challenges, which vary from technical and infrastructural to legislative and social obstacles. In Serbia, but also in many other developing countries, these challenges represent a significant burden on the way to sustainable waste management.

Infrastructure obstacles: The biggest challenge in Serbia and many other countries is the lack of developed infrastructure for the collection, transport and processing of green waste. Many local communities still do not have adequate systems for the selective collection of green waste, and existing landfills are not equipped to process organic waste in a sustainable manner. Also, in some countries, there is a lack of biogas plants, composting plants and other facilities that enable the recycling of green waste into useful products.

Legislative and institutional framework: The lack of consistent and effective laws regulating green waste recycling is one of the biggest challenges. Although there are basic laws on waste management, many countries, including Serbia, do not have specific laws that would encourage the recycling of green waste and oblige cities and companies to implement circular practices. Also, there is a lack of coordination between institutions, which slows down the development of systems for sustainable waste management.

Financial challenges: Many cities, especially in developing countries, face significant financial challenges. There is a lack of public and private investment in the infrastructure and technology required for effective green waste management. Without adequate financial resources, the implementation of circular practices remains limited.

Education and awareness of citizens: Another key challenge is the low awareness of citizens about the importance of recycling and circular practices. Many people are not sufficiently informed about how to properly separate green waste, which leads to its improper processing and reduces the efficiency of the recycling system. Additional investments in education and awareness campaigns among citizens are needed.

2. Proposals for improving existing systems and improving policies and regulations

In order to overcome the challenges in the implementation of the circular economy, it is necessary to develop a comprehensive approach that includes improvements in infrastructure, legislation, education and financial policies. Some of the key suggestions for improving the green waste management system include:

Developing infrastructure for green waste management: For the successful implementation of circular practices, investment in infrastructure for selective collection, transport and processing of green waste is necessary. This includes the construction of biogas plants, composting plants, as well as the modernization of landfills in order to enable the processing of green waste in an environmentally friendly manner. Investments in such systems would enable Serbia and other countries to recognize the potential for the production of compost and biogas as renewable energy sources.

Strengthening legislative frameworks: It is necessary to develop specific laws that regulate the recycling of green waste and oblige cities and companies to implement circular practices. Legislative initiatives should include subsidies for companies investing in circular technologies, tax breaks for citizens who separate waste, and stricter penalties for improper waste management. Also, it is important to harmonize the legislative framework with the European Union in order to ensure continuity in the EU integration process.

Financial support and incentives: In order to provide the necessary funds for infrastructure development, it is necessary to introduce financial incentives, subsidies and tax breaks for companies dealing with green waste processing. Also, international financial assistance and partnerships with the private sector can significantly contribute to the development of these technologies and practices.

Education and awareness raising of citizens: Investing in education and awareness-raising campaigns among citizens is a key element for the successful implementation of circular practices. Educational programs in schools, information campaigns through the media, and organizing local events can help promote proper green waste management. Also, it is important to involve citizens in the creation of policies and decisions related to waste management in order to increase their involvement.

Possibilities for further development of circular practices and technologies in green waste management

To further develop circular practices in green waste management, it is necessary to research and implement new technologies and approaches that can improve efficiency and economic benefits.

Technological innovations in green waste recycling: Technologies such as closed system composting, biological treatment and aerobic digesters can significantly improve the efficiency of the green waste recycling process. Also, the introduction of smart waste monitoring and management systems, such as sensors to identify waste types and track them via the Internet (IoT), can help in more efficient collection and recycling.

Development of compost and biogas markets: Markets for products made from recycled green waste, such as compost and biogas, need to be developed. These technologies can contribute not only to the reduction of CO₂ emissions, but also to provide renewable energy sources and ecological products that can be used in agriculture, horticulture and energy. Developing a biogas market can also contribute to reducing dependence on fossil fuels.

International cooperation and exchange of experience: Serbia and other developing countries can learn from the experiences of developed countries, such as Germany, Sweden and the Netherlands, which have implemented successful green waste management systems. International cooperation, exchange of experiences and joint projects can help in faster adaptation and application of circular practices, as well as in providing the necessary funds and technologies. The implementation of the circular economy in Serbia and other countries faces significant challenges, but there are also numerous opportunities to improve existing systems. Key steps towards successful implementation include strengthening the legislative framework, investing in infrastructure, improving education and raising awareness among citizens, as well as providing financial incentives for businesses and institutions. Further development of circular practices, with the support of innovation and international cooperation, can enable Serbia and other countries to achieve sustainable development goals and reduce the negative environmental effects of green waste management.

CONCLUSION

Circular green waste management is a key component of sustainable development, both at the global and local levels. Through efficient processing of green waste, such as composting and recycling, it is possible to reduce greenhouse gas emissions, regenerate soil, preserve biodiversity and extend the life of landfills. The ecological advantages of the circular economy in green waste management are not only important for environmental protection, but also for reducing waste processing costs, which has a significant economic impact.

In EU countries, such as Germany, Sweden and the Netherlands, the implementation of circular practices has shown successful results in reducing the amount of waste in landfills, producing renewable energy sources through biogas and increasing the efficiency of recycling. Globally, cities such as Vienna, Amsterdam and Stockholm are setting high standards for green waste management, providing valuable examples for developing countries such as Serbia. Although there are numerous challenges, such as a lack of infrastructure, low awareness of citizens and a weak legislative framework, the potential for the application of circular practices in Serbia is significant.

For the further development of circular practices in Serbia, it is necessary to invest in infrastructure, improve legislative frameworks and provide financial incentives for companies dealing with green waste recycling. Also, educating and raising citizens' awareness of the importance of proper waste management is key to achieving sustainability goals. The application of circular practices can open new markets for compost, biogas and other products generated from green waste, thus contributing to economic growth and employment. Although there are challenges in the implementation of circular practices in Serbia and other developing countries, given the available technologies, international cooperation and political will, there is great potential for improving existing systems. Further development of circular practices will not only contribute to reducing the ecological footprint, but will also create the foundations for a more sustainable and economically efficient waste management system. By directing resources towards sustainable development, the circular economy can become a key driver of innovation, employment and environmental protection.

REFERENCES

- [1] Keesman, K. J. Management of green waste in urban environments: Challenges and opportunities. *Waste Management and Research*, Vol.35, No.9, pp.1023-1032, 2017.
- [2] European Commission, 2020. Circular economy action plan: For a cleaner and more competitive Europe. Available at: <https://ec.europa.eu/environment/circular-economy>
- [3] Sullivan, K. Addressing the challenges of green waste management in large cities. *Environmental Research Letters*, Vol.14, No.10, pp.104023, 2019.
- [4] Ellen MacArthur Foundation, 2017. Circular economy: A transformative economic model for a sustainable future. Available at: <https://www.ellenmacarthurfoundation.org/circular-economy>
- [5] Bocken, N. M. P. Circular economy: Reviewing its possibilities and challenges for the management of waste and resources. *Journal of Cleaner Production*, Vol.257, pp.120434, 2020.
- [6] IPCC, 2019. Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems. Intergovernmental Panel on Climate Change. Available at [SRCCL-Full-Report-Compiled-191128.pdf](https://www.ipcc.ch/srccl/)
- [7] Gillingham, K., & Parkinson, T. Environmental benefits of composting green waste in urban areas. *Waste Management*, Vol.72, pp.115-121, 2018.
- [8] Lieder, M., & Rashid, A. Circular economy business models: Implementation and the role of green technology in waste management. *Resources, Conservation & Recycling*, Vol.156, pp.104676, 2020.
- [9] OECD, 2018. The circular economy in cities: A review of the OECD study. Organisation for Economic Co-operation and Development. Available at <https://www.oecd.org/environment/waste/>
- [10] Stahel, W. R. The performance economy. Palgrave Macmillan UK, 2010, ISBN 1349283584, 9781349283583
- [11] Schmidt, L. Urban green waste management and circular economy in Vienna. *Waste Management*, Vol. 82, pp.171-180, 2019.
- [12] Ministry of Environmental Protection of the Republic of Serbia, 2019. Waste management Law. Available at <https://www.parlament.gov.rs>
- [13] City of Vienna, 2020. Waste Management and Circular Economy in Vienna. Available at: <https://www.wien.gv.at>
- [14] Amsterdam City Council, 2020. Circular Economy in Amsterdam. Available at: <https://www.amsterdam.nl>
- [15] Stockholm Environmental Department, 2020. Sustainable Waste Management in Stockholm. Available at <https://www.stockholm.se>
- [16] United Nations Environment Programme, 2018. Global Waste Management Outlook. Available at <https://www.unenvironment.org/resources/report/global-waste-management-outlook>
- [17] Ministry of Environmental Protection of the Republic of Serbia, 2020. Plan for waste management in Serbia. Available at <https://www.ekologija.gov.rs>.