THE ROLE OF CIRCULAR ECONOMY IN SUSTAINABLE DEVELOPMENTS GOALS IN ALBANIA

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Hysaj Albina
Epoka University, Tirana, Albania
albinahysaj@gmail.com

Abstract
This article aims to explore the role of the circular economy towards the accomplishment of Albania's Sustainable Development Goals by emphasizing the developments of sustainable practices in areas such waste management, resource efficiency, and environmental conservation. Aiming to align the country's practices with EU standards, Albania has integrated the circular economy practices into several national policy frameworks and recently approved or reviewed environmental laws. Through collaboration with several international organizations, and the implementation of international projects, Albania has developed a Circular Economy Roadmap, focused on green procurement, producer responsibility and public engagement.

Even though there are significant developments especially in the alignment with EU standards, limited recycling infrastructure, low waste separation rates, low public awareness, and inadequate regulatory implementation are considered significant obstacles in the process of transition from linear to circular economy. Enhancing the regulatory framework, promoting the public awareness, investing in the improvement of infrastructure, financing SME-s and improved collaboration among the public and private sector, would support an easier transition to circular economy and contribute to the job creation, environmental protection, and sustainable growth in Albania.

Keywords*: Circular economy, sustainable development goals, Albania, EU integration.*

Introduction

The Sustainable Development Goals are made of seventeen objectives aimed at achieving sustainable development, with a strong emphasis on solving several social, economic, and environmental concerns. The SDGs are published in 2015 by the UN General Assembly. Aimed to be accomplished by 2030, SDGs follow the Millennium Development Goals and shifts the global development direction toward sustainability. For developing nations like Albania, the Sustainable Development Goals are particularly significant because their achievement will indicate progress in fulfilling the prerequisites for EU membership. Albania has adopted the National Strategy for Development and European Integration 2015-2020 and integrated the Sustainable Development Goals since being granted EU candidate status in June 2014.

Several Sustainable Development Goals, especially goals associated with production and consumption, economic expansion, and environmental sustainability, are closely related to the circular economy principles. Recognizing the role of the circular economy practices in achieving several Sustainable Development goals especially those that are related to production and consumption, resource management, waste management, competitiveness and innovation, environment protection, clean energy, economic growth and so forth, has leveraged the interest of the researchers and the policymakers toward circular economy

implementation practices (Arruda et al., 2021; Moraga et al., 2019; Padilla-Rivera et al., 2020).

The circular economy has significant economic, environmental, and social impact. Ekins et al. (2019), Lewandowski (2016), and Rizos et al., (2017) show that switching from a linear to a circular economy seeks to decline environmental damage caused by non-reusable waste and so lessen reliance on non-renewable natural resources. A basic model of the circular economy is the pattern of utilizing the output of one product as the input for another, so generating a closed-loop system. McCarthy et al. (2018) also argue that optimizing the use of natural resources can help achieve environmental objectives, lower reliance on imports by using domestic secondary resources, and promote economic growth and job creation by circular economy practices.

The distinction between a linear economy and a circular economy is substantial. In a linear economy, resources are extracted, processed into products, consumed, and ultimately removed as waste. On the other hand, the circular economy operates within a closed-loop framework, where waste is minimized, and resources are continuously cycled back into the system. After products are used, they undergo processes such as recycling, recovery, repair, retention, and return, ensuring their ongoing utility and reducing environmental impact.

Ellen MacArthur Foundation (2015) describes the concept of circular economy by using butterfly diagram. The diagram illustrates the circulation of materials through two circles. The first cycle includes the activities and processes such as sharing, maintaining or prolonging, reusing, remanufacturing and recycling of the finite sources and is called the technical cycle. The second cycle includes all the activities and processes that ensure the regeneration of nature and natural renewable resources, and the sustainability of their utilization is called the biological cycle.

The implementation of circular economy is in the early development stages in Albania. However, a report of OECD (2024) highlights three critical focus areas where circular economy reforms could significantly benefit Albania. These include: (1) utilizing economic tools to promote sustainable production and consumption practices, (2) fostering the development of circular business models, especially among small and medium-sized enterprises (SMEs), and (3) tackling challenges within the plastics value chain, having a particular focus on combating marine pollution. Sustainable production and consumption can be achieved by increasing the recycling rate, extending the life of production and increasing the waste management. Business models play a crucial role in the implementation of circular economy.

The aim of this paper is to investigate the role of circular economy in the Sustainable Development Goals in Albania emphasizing the main obstacles and opportunities in the process of transition towards more sustainable practices in waste management, resource efficiency, and environmental conservation. Since receiving its candidacy for the European Union integration, Albania has undertaken several reforms focusing on the sustainable growth and development, with a special focus on green reforms, waste management, and increasing the infrastructure supporting the circular economy.

Albania is in the earliest steps of implementation of circular economy. Based on the statistics of the Albanian Institute of Statistics (2022), the recycling rate of municipal solid waste in Albania is only 17%, which is significantly lower compared to the EU average of 49% (Eurostat, 2022) . Based on the report of Lloyd's Register Foundation (2024) entitled World Risk Poll 2024 Report, 78% of the household in Albania has responded not to practice any waste separation at the source, which is a very high percentage compared to the 63% which is the average for the low-income countries, emphasizing the low public awareness and the need for increased public participation and improved waste management infrastructure.

Literature Review

Several research papers have examined the connection between the circular economy implementation indicators and the compliance with SDGs and have achieved significant results. Rodriguez-Anton et al., (2019) investigate the correlation between nine indicators of circular economy and SDGs, in 156 countries with data as of 2017. The chosen indicators are organized in four groups, such as production and consumption indicator, waste management indicator, secondary raw materials indicator and competitiveness and innovation indicator. The authors investigate the correlation between the chosen indicators and SDG 6, 8, 9, 11, 12, 13, 14, and 15. The findings of the study suggests that there is found a relationship of all CE indicators with SDG 8, 9, 11, 12 and there is found a relationship of at least one of CE indicators with SDG 13 and SDG 14.

Fatimah et al., (2020) give a valuable contribution by developing and designing the smart systems and business processes for the waste management in Indonesia. They use internet of things to integrate the application of the circular economy processes. The authors conclude that the system they have designed to implement the circular economy will have a significant influence on the Sustainable Development Goals such as SDG 3, 6, 8, 12 and 13. Their system is designed to have vital economic, social and environmental impact. Another study by Dantas, et al., (2021) aims to investigate the impact of both circular economy and Industry 4.0 on the Sustainable Development Goals. By conducting a systematic literature review, the authors find that the incorporation of Circular Economy and Industry 4.0 has a pivotal impact on the SDGs as it ensures the incorporation of innovative technology, circular production practices and business models. The impact is particularly significant in SDG 7, 8, 9, 11, 12, and 13.

Ronzon and Sanjuan (2020) examine the relationship between EU bioeconomy strategy and sustainable Development Goals in 28 EU countries for the period from 1990 until 2018 by using a bivariate correlation and mapping the 2018 EU bioeconomy strategy with SDGs. The results of their study suggests a positive relationship among bioeconomic strategy and SDG 7, 11, and 15. However, there is a negative correlation between agrobiodiversity strategies and SDG 2, SDG 8, SDG 9, and SDG13. Schroeder, Anggraeni, & Weber (2018) use a narrative literature review to analyse the relation between circular economy and sustainable development goals. The findings suggest that the practices of circular economy have a positive direct strong contribution to SDG 6, 7, 8, 12, 15. Furthermore, Circular Economy may give a significant contribution on potential synergy among several SDGs such as SDG 8, 1, 2, 14, and 15.

Also, Ferraz & Pyka (2023) conduct a bibliometric analysis 649 research papers for the period 2007-2022, and systematic literature review of 81 articles to investigate the impact of circular economy and bioeconomy on sustainable development goals. The authors conclude that the circular economy primary impacts SDG12, continuing SDG7, 6. Furthermore, bioeconomy impacts SDG 7, 9, and 12.

Table 1. Literature Review Summary

Study	Focus Area	Methodology	Key Indicators/Systems	Relevant SDGs	Key Findings
Rodriguez-Anton et al. (2019)	Correlation between CE indicators and SDGs	Correlation analysis using data from 156 countries (2017)	Production & consumption, waste management, secondary raw materials, competitiveness & innovation indicators	SDG 6, 8, 9, 11, 12, 13, 14, 15	Strong correlation of all CE indicators with SDG 8, 9, 11, 12; at least one CE indicator linked to SDG 13 and 14.

Fatimah et al. (2020)	Smart systems & business processes for waste management in Indonesia	Development of IoT-based systems	Internet of Things (IoT) for CE process integration	SDG 3, 6, 8, 12, 13	CE system design has significant economic, social, and environmental impacts, enhancing SDG implementation.
Dantas et al. (2021)	Joint impact of CE and Industry 4.0 on SDGs	Systematic literature review	Integration of innovative tech, circular production practices, and business models	SDG 7, 8, 9, 11, 12, 13	CE and Industry 4.0 combination plays a pivotal role in driving SDGs through technology and business model innovation.
Ronzon & Sanjuan (2020)	Relationship between EU bioeconomy strategy and SDGs	Bivariate correlation and strategy mapping (1990–2018)	EU bioeconomy strategy and agrobiodiversity strategies	Positive: SDG 7, 11, 15; Negative: SDG 2, 8, 9, 13	Positive correlation with SDG 7, 11, 15; negative correlation found between agrobiodiversity strategies and SDG 2, 8, 9, 13.
Schroeder et al. (2018)	Narrative literature review	CE practices and SDG synergy analysis	Strong contribution to SDG 6, SDG 7, SDG 8, SDG 12, SDG 15; Potential synergy with SDG 8, SDG 1, SDG 2, SDG 14, SDG 15	Schroeder et al. (2018)	Narrative literature review
Ferraz & Pyka (2023)	Bibliometric analysis (649 papers, 2007-2022) & systematic literature review (81 articles)	Impact of CE and bioeconomy on SDGs	CE primary impact on SDG 12; also impacts SDG 7, SDG 6; Bioeconomy impacts SDG 7, SDG 9, SDG 12	Ferraz & Pyka (2023)	Bibliometric analysis (649 papers, 2007-2022) & systematic literature review (81 articles)

Methodology

As Albania is still in its early phases of implemented circular economy, this study employs a desk research approach to analyse the role of the circular economy in achieving Albania's Sustainable Development Goals. The research methodology of this study consists of using available data, articles, reports to have a descriptive analysis of the topic of study. The key concepts of conducting the research are circular economy and sustainable development goals in the context of Albania. To look for those concepts are used scientific research search engines such as Science Direct, Google Scholar, Semantic Sholar, RePEc and SSRN. For reports and data mostly are used the websites of OECD, United Nations, The World Bank, Eurostat, European Commission, the Albanian Institute of Statistics, and so forth. One of the

most important limitations of this methods stands in the fact that the analyse may not go into deep details.

Findings and Discussions

Albania's shift to a circular economy is in its nascent stages, characterized by both emerging opportunities and persistent challenges. The integration of circular economy practices into Albania's policy framework has been primarily driven by the National Waste Management Strategy (2018-2033) and various environmental protection laws designed to align with EU standards. The implementation of several national strategies and the improvement of the regulatory framework emphasize Albania's commitment to aligning with sustainable development goals, particularly within the context of its EU integration aspirations.

In the framework of application of the circular economy, Albania has development the Circular Economy Roadmap, which relies on three main pillars: green public procurement, extended producer responsibility, and public awareness campaigns. The Circular Economy Roadmap serves as a guideline to the Albanian government by providing several policy recommendations and monitoring frameworks to facilitate and track the transition to circular economy. Albania's transition to circular economy is also supported by the European Union institutions and the UNDP which have continuously offered technical assistance and funded several projects, contributing to the facilitation of the capacity-building and the adoption of best practices from other European countries.

The implementation of the circular economy in Albania is supported by business models in several areas, such as waste management, agriculture, textiles, tourism, and renewable energy, which are crucial to achieving sustainable development Goals (Hysaj, 2024) . Sustainable Goal 12, related to Responsible Consumption and Production, is the focus of the main pillars of circular economy, such as sustainable resource use, waste generation reduction, and recycling practices (Schroeder, Anggraeni, & Weber, 2018). Moreover, Sustainable Development Goal 8, related to Decent Work and Economic Growth, and Sustainable Development Goal 9, related to industry, innovation, and infrastructure, is supported by the promotion of recycling, waste management, and eco-innovation sectors (McCarthy et al., 2018; Ferraz & Pyka, 2023). Sustainable Development Goal 6, Climate Action, is promoted by the policies and laws aiming to lower the greenhouse gas emissions through waste management and energy efficiency. Moreover, the promotion of renewable energy supports the achievement of Sustainable Development Goal 7, Affordable and Clean energy (Ferraz & Pyka, 2023; Schroeder et al., 2018).

Regardless of the significant developments that enable the application of circular economy practices, this process faces considerable barriers. These barriers are related to the limited and inadequate recycling infrastructure, low levels of waste separation at the source from the households, and gaps in regulatory enforcement. Even though several EU projects are supporting the country's advancement toward this direction, the limited financial incentives and low awareness among businesses and consumers makes the transition difficult and slow. Moreover, small and medium-sized enterprises, which represent over 99% of Albania's businesses, often lack the technical expertise and resources needed to adopt circular business models (OECD, 2019).

Regardless of the barriers and challenges faced there are numerous local initiatives aiming to ease the application of circular economy. Municipalities of Tirana and Durrës have launched several projects aiming to improve the waste management systems, to encourage recycling, and to promote the usage of clean energy, furthermore, directly contributing to SDG 11, associated with Sustainable Cities and Communities, SDG 12 associated with Responsible Consumption and Production, and SDG 7, associated with Affordable and Clean

Energy. Furthermore, the encouragement of public-private partnerships, educational initiatives, integration of the circular economy concept into university curricula, and collaboration with academia are widely used practices used to promote community involvement in sustainable practices and increase awareness especially among young generations.

Conclusions

This study analyses the contribution of circular economy in the fulfilment of Albania's Sustainable Development Goals (SDGs), focusing on the goals associated with responsible consumption and production, economic growth, sustainable cities and communities and environmental sustainability. Albania has made significant efforts to incorporate circular economy principles within its national policies, aligning with EU environmental standards and fostering international cooperation.

On the other hand, the transition to a fully functional circular economy in Albania is still a work in progress. The primary obstacles include infrastructural deficiencies, weak regulatory enforcement, limited financial incentives, and insufficient public awareness. To overcome these challenges, it is crucial to strengthen institutional capacities, enhance stakeholder engagement, and promote innovative business models that support circular practices.

Key policy recommendations derived from this study include:

- **Enhancing Regulatory Frameworks:** Strengthening the enforcement of existing environmental regulations and introducing new policies that incentivize circular economy practices.
- **Promoting Public Awareness:** Implementing nationwide educational campaigns to encourage a culture of sustainability among citizens and businesses. Integrating the circular economy concepts into university curriculum.
- **Supporting SMEs:** Providing technical assistance, financial incentives, and capacity-building programs to help SMEs adopt circular business models as the SMEs make 99% of businesses in Albania and they have limited financial sources.
- **Encouraging Public-Private Partnerships:** Leveraging partnerships between government entities, businesses, and civil society to induce innovation and investment in circular economy initiatives.
- **Improving Infrastructure:** Investing in modern waste management and recycling facilities to support efficient resource recovery and reduce environmental impact. Moreover, financing the infrastructure to facilitate clean energy

In conclusion, although Albania faces considerable challenges in its circular economy transition, the opportunities for sustainable growth, environmental protection, and economic resilience are significant. By addressing the existing the internal barriers and benefiting from its international strategic partnerships, Albania has the opportunity to move forward with a more sustainable growth and development.

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