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CIRCULAR ECONOMY CONCEPT AND PERSPECTIVES IN CROATIA

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Abstract

In the time of competitiveness, circular economy is a way to change economic growth pattern and achieve the balance among economy, resources and environments. World trends show that circular economy is an excellent way to create jobs and thus increase economic growth.

This paper argues that increasing resource efficiency through growth in circular economy can help address structural mismatch in labour market in Croatia. Therefore, circular economy is a very complex issue, involving resource extraction, transportation, production, consumption, distribution, waste management, social norms, biological and technological cycles etc. For developing of circular economy is necessary to explore the theory of circular economy and possible practical implementation, but to drive broader changes it is critical to collect and share data, spread best practice, invest in innovation and encourage consumers with adequate green product information. The purpose of the each country is to investigate basic principles and nature of circular economy, problems for the transition to a circular economy and to propose relevant policies, possible solutions and constructive mechanism of promoting circular economy.

Taking into account what economic activities encompass the circular economy, it simply represents a necessity for every society and its well-being. So there's a reasonable chance that a growing circular economy in Macedonia and Croatia will offer opportunities for a range of occupations across Western Balkan countries.

Key words: circular economy, waste management, eco-innovation, economy, growth

1. Introduction

In recent years, we are increasingly witnessing the meaning of the term circular economy. World trends show that circular economy is an excellent way to create jobs and thus increase economic growth. This implies employment in the retail of second hand goods sector, employment in repair activities by employment in the repair of machinery and equipment sectors and the repair of electronic and household products sector, closed & open loop recycling activity is proxied by employment in the wholesale of waste and scrap sectors and the waste and recycling sector, and for circular economy activity relating to servitisation jobs are proxied by employment in the rental & leasing sectors [8].

Europe 2020 strategy emphasizes the policy objectives of sustainable development and is focused to resource efficiency and EU competitiveness. In end of 2015, the European Commission adopted a Circular Economy Package that seems to be a crucial turning point for further implementation of ecodesign concept into various economy sectors and will contribute to "closing the loop" of product life cycles through greater recycling and reuse. EU Action Plan for the Circular Economy establishes a concrete targets and measures for waste management and resource efficiency by 2030 [4]. Therefore, circular economy development initiatives create new challenges and draw up the new perspectives. At the base of circular economy is life cycle thinking. Life cycle thinking means recognizing the various impacts that occur at all points along the life cycle of the product or material. It also means recognizing how certain choices – materials used, manufacturing process, energy sources, distribution channels, disposal possibilities – influence those impacts.

In practice, life cycle thinking means evaluating the potential influences as part of the decision making process. Life cycle thinking is a broad concept that facilitates an integrated assessment of the benefits and the burdens in terms of environmental, social, and economic aspects, for specific products and regions, etc. The application of life cycle thinking requires specific methodologies [13]. Therefore, circular economy is a very complex issue, involving resource extraction, transportation, production, consumption, distribution, waste management, social norms, biological and technological cycles etc. For developing of circular economy is necessary to explore the theory of circular economy and possible practical implementation, but to drive broader changes it is critical to collect and share data, spread best practice, invest in innovation and encourage consumers with adequate green product information [6]. The purpose of the each country is to investigate basic principles and nature of circular economy, problems for the transition to a circular economy and to propose relevant policies, possible solutions and constructive mechanism of promoting circular economy [8]. The results of the research show that circular economy implementation milestones are: legal framework, administrative conditions, economic instruments and public education and awareness.

2. Level of circular economy growth in Europe: an economic approach

Growing circular economy offers substantial potential to create jobs through lowering structural mismatch in high unemployment regions in Europe. Development of a circular economy involves a major industrial transformation.

Growing circular economies create economic value using more labor and fewer resources thereby increasing the efficiency of resource use and economic activity. Integrating the labor requirements of a growing circular economy into the overall labour market is important; it also allows a distinction to be made between net or additional job creation and gross jobs creation where vacancies are filled by people moving from existing posts. Current employment in Europe in circular economy activities (in the repair, waste and recycling, rental & leasing sectors) is estimated to be at least 3.4 million [11]. Of this total 1.2 million jobs are in repair of machinery & equipment, 400,000 jobs are in repair of computers, personal and other household goods, 700,000 jobs are in waste collection, treatment & disposal activities, 300,000 are employed in the recovery of sorted materials and the wholesale of waste and scrap, 100,000 jobs are in in-store retail of secondhand goods and 600,000 people are employed in rental & leasing activities.

An expansion in circular economy activity appears to offer the potential to create jobs across Europe through reducing cross country differences in unemployment: indicators of current employment in circular economy activities are broadly in line with the distribution of total employment across Europe and other measures of the propensity for countries to specialise in "circular economy" activities together with patterns in the geographical distribution of these activities illustrate a reasonable potential for European countries to benefit from expansion in circular economy [13]. And, there is a strong potential for an expansion in circular economy in Europe to offer jobs in mid-level occupations where there has been a decline in the number of posts offered [6]. An indicative quantification from the analysis shows that the potential labour market impact in Europe by 2030 is to create 1.2 million jobs with a reduction in unemployment in Europe by around 250,000. Inevitably there are considerable uncertainties around such estimates; in particular future advancements in technology could substantially change this picture [18].

3. Towards a more resource- efficient and circular economy in Croatia

Rich natural heritage that is synonym for Croatia underlines the impact of tourism on Croatia's economic development. In this way, tourism has influence on environment which means more focus on waste management, especially in era of energy efficiency as ensuring compliance with the environmental legislation.

Taking in advance that Croatia is part of the EU, it must ensure compliance with the EU environmental legislation. All analyzes shows that moving to more circular economy is very slow, as indicates the importance of making efforts in waste management.

Regarding the EU environmental legislation and its implementation in Croatia, there is detection of some priority challenges which focus is on waste management. Actually, these include activities like improving waste management in recycling of municipal waste that should be increased. This activity is very important in aim the EU recycling target. In the medium term, this will allow the economy to move from a linear to a more circular economy.

Another important challenge for Croatia is ensuring potential benefits from implementation of the project for the fulfilment of the requirements of the Accession Treaty with respect to Urban Waste Water Treatment Directive and Drinking Water Directive. For example, there was a finalized project on modernization of the water and wastewater infrastructure. This ensures benefits for inhabitants and safeguarding the River Danube [16].

The strategies implemented by Croatia, which refer to creating a more circular economy, are summarized as an outcome in the creation of the Green Book. The Green Book of Croatia sets a priority to develop a low carbon strategy for the period from 2030 to 2050 [14]. This is of great importance for the whole economy, but especially for the sectors it covers such as transport, industry and waste management. The outcome of implementing this strategy should make Croatia more competitive low-carbon economy.

4. Designing and planning the circularity in Croatia

Promoting Croatia as a circular economy as well as improving resource efficiency will stimulate investment. However, Croatia has so far shown a low degree of resource productivity as well as low recycling rates. Namely, environmental and socio-economic issues indicate Croatia in 2015 as economy that began its transition from a linear to a circular economy [7]. Another shortcoming is that Croatia still needs to work on appropriate policies and a regulatory framework that will be aligned with EU regulations.

Policy-makers in Croatia see a big challenge in raising the awareness of business and consumers that the new times require a change in business and market models, the ways in which waste will be transferred to resources and in the producers and consumers' related values and behavior. Thus, the most relevant strategies for developing circular economy are National renewable energy action plan until 2020, Strategy for innovation support of the Republic of Croatia 2014-2020, Waste management plan of the Republic of Croatia for the period

2017-2022, Nature Protection Strategy and Action Plan of the Republic of Croatia for the Period 2017-2025, Strategic Plan of the Ministry of Economy, Entrepreneurship and Craft (2019-2021) [16].

Growth in the circular economy, whether modest or transformational, can create a wide variety of employment opportunities. In the case of Croatia, the connection between SMEs and resource efficiency, it account for 56.2% of total value added - compared with 58% in the EU - and provide 67% of total employment.

Research show that resource efficiency in green markets linked with the opportunity for employment, SMEs have invested up to 5% of annual turnover, 23% of them offer green products and services, and 64% took activities to save energy, 66% minimize waste, 53% save materials. From circular economy point view, 33% apply measures to recycle by reusing material. So, applying resource efficiency actions is motivated precisely because of the cost savings. In 2020, Croatia is country where 85% of the SMEs use actions just for this reason thus giving the opportunity of reduction in production cost in the most of small enterprises in Croatia .

Analyzing eco-innovation and its transition to a circular economy, Croatia lags far behind the rest of the EU. Actually, eco-innovation in Croatia, is far below the EU average, as it is in sixth place from the rear. What is interesting to mention is that all the measured components of this country, although below the EU average, Croatia proved to be an economy whose highest results are recorded for eco-innovation. Actually, Ecol Index or eco-innovation index is an index based on 16 indicators that are aggregated into five components, namely inputs for eco-innovation, innovation activities and eco-innovation results, as well as environmental results and socio-economic results. This index shows a country's eco-innovation performance compared to the EU average and top EU contractors.

In 2019 and 2020, significant movements were made from linear to circular economy, but still needs a lot of investment to make progress. More and more companies are focusing on projects that include eco-innovation products, energy efficiency and recycling. In this regard, the Waste Management Plan has shown particularly positive results in Croatia. This plan includes waste reduction and prevention, green public procurement and providing support for special collection [12].

Positive trends are detected among scientific institutions and the business sector, especially the companies that received the EU Eco-label, as an upward trend in the increased share of research and development costs in GDP for 2018. The application of the national strategies for innovation and smart specialization give an optimistic picture for the faster movement of Croatia as a circular economy, but of course the foreign funds have an important role and contribution. 2020 is a period when Croatia has achieved the set goals related to renewable energy and reduction of greenhouse gas emissions. In this area, Croatia is the 8th best contractor in the EU. The potential for additional expansion of the contribution of the amount of energy produced by solar and wind energy due to the favorable geographical position has also been detected. This will de facto contribute to the creation of new jobs in the field of green technologies in Croatia, reduction of greenhouse gas emissions, diversification of energy supply and reduced dependence on fossil fuel markets.

5. Measures towards a circular economy in Croatia: benefits and barriers

In Croatia's circular economy, several obstacles have been identified that have an impact - cultural and geographical, economic and legal. The first type of barriers shows their specificity through the regional implementation of laws and the construction of infrastructure, especially emphasizing the lack of connection between the public and private sector in waste management [17].

Reports show that when it comes to waste management, especially with the recycling of municipal waste in Croatia, it remains low and the target for recycling municipal waste in 2020 of 50% is not met. This show that stronger collective efforts are needed to reduce the amount of municipal waste generated and disposed of which is predominantly paper, cardboard and bio-waste. Electrical and electronic waste is a new type of waste that has been created and is the fastest growing type of waste. This waste is receiving more and more attention precisely because of the many negative effects it creates [1].

The other type of barriers is economic ones related to investing in recycling and recovery infrastructure, circular eco-product design and 3P production. The limitations are seen in the financing of green public procurement and thus the financing of green circular business models. Legal barriers cause market barriers. Also, due to the diversity of companies, industries that require different sets of indicators have difficulty evaluating the effectiveness of different instruments [14].

The potential for rapid movement towards a circular economy is seen in the general increased awareness of the market and the citizens on the one hand and the financial subsidies and the institutional initiative for waste prevention on the other [11]. Funding for such projects is from foreign funds, international organizations where an institution is established whose role is environmental protection and energy efficiency as well as the use of renewable energy sources. For the second type of support, an example in Croatia is the Croatian Chamber of Commerce whose mission is to stimulate the circular economy and eco-innovation. In 2018-2019, many projects have been recorded that promote the principles of circular economy and business

models that are sustainable, as well as the modernization of services in this domain by creating a digital catalog of companies whose services are aimed at protecting the environment.

Another initiative for development of the circular economy in Croatia is through HGK_COR ACCELERATOR which as a platform promotes partnership between the business sector, state institutions and citizens to jointly achieve the goals of sustainable development. The purpose of this platform is to strengthen the understanding of the importance of sustainable development goals for building an economically prosperous, socially inclusive and environmentally sustainable society [10].

In order to make Croatia a progress in terms of the circular economy, it is necessary through national strategies to implement appropriate measures and instruments, as well as all relevant economic and legal segments. This refers to regulatory instruments covering eco-design regulations as economic instruments related to landfill duties and taxes, waste management subsidies and green public procurement and infrastructure investments [3]. Of particular importance is the research and development in the field of circular economy and eco-innovation in terms of its financing as creating incubators for innovation in this field, on the one hand, as deepening the network in the direction of advisory services for start-up companies, trainings, skills courses, on others [14].

For example, in Croatia, in order to promote green transport and reduce air pollution, a project is launched by the Fund for Environmental Protection and Energy Efficiency that lasted from 2014 to 2019. This project included the granting of grants to citizens and companies to buy energy efficient vehicles. This is the reason why Croatia is a country where there has been a rapid increase in electric and hybrid vehicles in recent years.

Another interesting project is the project for financial instruments in renewable energy projects. This project started in 2018 including 6 partner countries - Germany, Poland, Croatia, Latvia, Ireland and Spain and was implemented by the Fund for Environmental Protection and Energy Efficiency. The importance of this project is perceived through the exchange of knowledge and experience between the partner countries in this project which will provide best practices for renewable energy projects as well as preparation of an Action Plan for implementation of financing instruments in this type of projects. An additional contribution is seen in the stimulation of entrepreneurship in the circular economy of Croatia and especially due to the fact that this project is the basis for programming the needs of Croatia in the field of renewable energy for the period 2021-2028.

6. Support and implementation in Croatian circular economy

In the last two years, Croatia, through its policy makers, has started implementing numerous policies and strategies for the development of the circular economy. In that regard, as mentioned above, the most relevant activities that have been undertaken and should be implemented are included in the National renewable energy action plan until 2020, Strategy for innovation support of the Republic of Croatia 2014-2020, Waste management plan of the Republic of Croatia for the period 2017-2022, Nature Protection Strategy and Action Plan of the Republic of Croatia for the Period 2017-2025 and Strategic Plan of the Ministry of Economy, Entrepreneurship and Craft (2019-2021). To monitor and implement the goals for sustainable development in Croatia, a government body was formed to monitor the United Nations Agenda 2030. In 2019, the creation of a strategic policy for sustainable development of this country involved its Chamber of Commerce.

Waste management is a very important segment when it comes to the circular economy [2]. Thus, a Waste Management Plan has been created in Croatia, the time frame of which is from 2017 to 2022 [12]. This plan consists of several measures, such as - improvement of municipal and hazardous waste management systems, remediation of polluted sites, improvement of the information system for waste management and supervision and administrative procedures in waste management. The plan also envisages the construction of waste management centers that will promote innovative practices, as well as the creation of recycling yards, sorting and composting centers where waste will be prepared for recycling. This segment also includes the Ministry of Economy, Entrepreneurship and Crafts by reducing taxes, stimulating investments, reducing administrative costs for the business sector, which as a result should deliver strengthening economic growth in Croatia.

Croatia, as an EU member state, together with the other member states of this bloc, which are focused on the growth of the use of energy from renewable sources, have created the National Renewable Energy Plan. According to this plan, the share of energy from renewable sources in the final consumption should be at least 20% by 2020 compared to the EU level. Eurostat reports show that in 2018 the share of energy from renewable sources in final consumption reached 28%, and in 2020 the target is exceeded by 8 pp. which made it the 12th EU member state to meet its 2020 binding targets. Regarding this, of particular importance for the Croatian economy is the strategy for supporting innovation, which aims to increase investment in knowledge, creativity and innovation. This strategy contributes to increasing research, technological development and innovation as well as increasing the business sector to invest as much as possible.

7. Conclusion

Research shows that resource efficiency in green markets linked with the opportunity for employment, SMEs have invested up to 5% of annual turnover, 23% of them offer green products and services, and 64% took activities to save energy, 66% minimize waste, 53% save materials. From circular economy point view, 33% apply measures to recycle by reusing material. So, applying resource efficiency actions is motivated precisely because of the cost savings. In 2020, Croatia is country where 85% of the SMEs use actions just for this reason thus giving the opportunity of reduction in production cost in the most of small enterprises in Croatia.

This paper shows the efforts and results from reforms related to the circular economy that have started in Croatia. These activities include tools to improve the environment, environmental taxation, green public procurement, contribution of EU funds, effective management and knowledge, regulation, access to information. What needs to be followed is the created approach for incorporation of the circular economy within the European Structural and Investment Funds, as part of the national strategy, introduction, and observance of systems for "pay how much you throw", borrowing all municipalities together in an environmental project between all municipalities which involves diversion of waste from disposal and waste treatment in one place. Strategies and plans promise to increase employment in parallel with the full implementation of the regulation.

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