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THE CONCEPT OF CIRCULAR ECONOMY IN RELATION TO SUSTAINABLE DEVELOPMENT GOALS

Abstract

Over the past century, economic and social progress has been accompanied by environmental degradation due to irrational consumption of resources and waste production. To address these problems, maintaining a balance between economic, social and environmental aspects, in 2015 the UN presented their new plan "Transforming Our World: The 2030 Agenda for Sustainable Development by 2030", including its Sustainable Development Goals (SDGs). Respectively, the Circular Economy is gaining prominence as a tool that offers solutions to some of the most global challenges of sustainable development. The purpose of this research was to evaluate the primary role and functions of the circular economy in achieving sustainable development goals. The core concepts of the circular economy and sustainable development strategies were examined during the research process, and a review of the existing scientific material was conducted to investigate the relationship between the terms. Particular attention was paid to the Goal 12: Responsible consumption and production, which is most interdependent with the circular economy. The conclusion identified significant similar principles and values that emerge from the scientific articles on circular economy and sustainable development. The research results can serve as a theoretical and practical basis for achieving sustainable development goals in the areas of environmental and economic management.

Key words: sustainable development, economy, closed cycle, sustainability, global problems, environment.

Introduction

Environmental problems created by incorrect consumption and production waste are among of the most pressing issues today. The first preconditions of threats that economic development can pose to the ecology, and that the consequences can become critical, appeared in the twentieth century. An environmental issue does not just affect one state, one country, or one group of people. It is the issue of the entire globe. As a result, global issues like climate change, biodiversity loss, waste and pollution

require global solutions. This has increased the need for international cooperation and became the beginning for summits and conferences on both small and large scales.

By holding The United Nations Conference on the Human Environment (UNCHE) in Stockholm in 1972, the United Nations (UN) authorized the first global steps to address environmental challenges. It brought together important international leaders to discuss the influence of humanity and economic development on the environment. During the conference, the participants adopted the Stockholm Declaration, which contains 26 principles and an Action Plan protecting the human environment. Another important decision following the conference was the creation of the United Nations Environment Program (UNEP) [1].

The release of "Our Common Future" by the UN is another significant development in the sphere of environmental issues. It also became known as the Brundtland Report, which first mentioned the term "Sustainable Development" [2].

After the Stockholm Declaration, there have been many major summits and conferences at the international level, such as The Earth Summit or UN Conference on Environment and Development (UNCED) in Rio de Janeiro (1992) [3], UN Millennium Summit (2000) [4] and UN Sustainable Development Summit (2015) [5] in New York and so on.

The main ideas of The Earth Summit in Rio de Janeiro were to identify the interconnectedness and overall development of the social, economic and environmental sectors. Accordingly, it was stressed that success in one sector depends on well-coordinated work in the other two. As a result of the summit, the strategy for achieving sustainable development Agenda 21 and the Rio de Janeiro Declaration and its 27 universal principles were presented [3].

The UN marked the beginning of the third millennium with symbolic activities, announcing the Millennium Declaration and its eight Millennium Development Goals (MDGs), which should reflect the realities of the twenty-first century. This strategy's fundamental goal was to put people at the center of everything [4].

The UN released a new plan in 2015 called "Transforming Our World: The 2030 Agenda for Sustainable Development by 2030", which included 169 targets and 17 sustainable development goals (SDGs). The purpose is to achieve all the goals by 2030 [5]. It is vital to remember that each previous plan has made a significant contribution to the creation of the modern world and the formulation of the SDGs as a long-term strategy.

The object of this study is the concept of a circular economy, and the subjects are the prospect of utilizing the circular economy to fulfill objectives for sustainable development.

In light of this, the goal of this study is to determine how the circular economy and the objectives of sustainable development relate to one another in order to promote further socioeconomic and environmental advancement.

To achieve this goal, the following tasks are defined:

- Conduct a full analysis of the theoretical approaches of sustainable development goals;
- Organize theoretical explanations of the circular economy concept;
- Determine the relationship between the two concepts, as well as the circular economy's function in achieving sustainable development goals.

The study's scholarly value rests in its theoretical examination of the notion of a circular economy within the context of sustainable development and its possible application to achieving their objectives.

Materials and methods

In this review article, were used such secondary sources of information as official informative data on international summits, their results, the content of published declarations and strategies for sustainable development from the UN web page. There was also a theoretical literature review of fundamental and new scientific works, various scientific review articles and practical articles on the relevant topic.

The performed qualitative research approach in the form of a theoretical analysis of the abovementioned materials is key to the formation of both a hypothesis and a research question: "Is the role of circular economy significant in attaining sustainable development goals?"

To gain a solution to the stated question, the research process was broken down into the following steps:

Step 1: The research question is posed.

Step 2: A theoretical review of the concept of "sustainability" was carried out. The definition and importance of the sustainable development goals were given.

Step 3: The idea of a "circular economy" was examined from a theoretical perspective, and a definition of the term was developed.

Step 4: The interlinkage between the two research concepts are based on the common characteristics identified through a review of the current literature on the SDGs and their relationship to the circular economy.

Step 5: The results were presented in the appropriate section, followed by a conclusion.

By analyzing multiple approaches, we study the interface between the ideas underlying circular economy and sustainability.

Main provisions

The Sustainable Development Goals is an active project of the UN for achieving economic prosperity, social inclusion and environmental sustainability. One of the most essential goals of sustainable development is responsible consumption and production (Goal:12) [5]. This goal corresponds to the shift to a new economic model known as the circular economy, which is described as a system of production and distribution that maximizes resource efficiency, produces zero waste, and has minimal negative environmental consequences [6]. That is, the research will focus on theoretical methods to accomplishing sustainable development goals, with a particular emphasis on the concept of a circular economy as a key feature of development. The link between Goal 12 and the circular economy can be traced from the common concept of achieving cleaner production, conscious consumption and reuse, thereby contributing to environmental, economic and social development.

On the basis of similarities between the circular economy and the Sustainable Development Goals (SDGs) that indicate the existence of a relationship between the two, the following literature review will examine the contributions of researchers to the understanding of the role of the circular economy in achieving SDG 12.

Literature review

Sustainability and SDGs: Responsible Consumption and production

In the literal sense, sustainability means the ability to maintain a certain entity, result or process over time without significant changes. The term "sustainability" comes from the Latin sustinere (tenere, to hold) and mean support, maintain and endure [7]. The term "sustainability" originally referred to the use of natural, renewable resources in a manner that allowed humans to rely on them for an extended period of time [8]. The term of sustainability dates to Hans Carl von Carlowitz (1645–1714). It was used in the forestry industry [9].

This terminology now has a broader meaning, encompassing economic, social, and environmental factors. For example, financial investments might be called sustainable if they do not exhaust the material resources on which they rely. This expression can also refer to social conditions that are dependent on others; for example, economic policies or cultural traditions might be described as sustainable if they do not deplete the political community's support. The term "sustainability", which is gaining popularity, refers to the ways in which environmental challenges harm the safety of economic, ecological, and social systems.

Sustainability highlights the reciprocal effects because environmental problems are intertwined with economic and social systems: humanity disrupts the natural balance of the environment through non-ecological activities, and codependence raises the concern of whether global environmental problems pose a threat to human systems. [10].

Dovers and Handmer (1996) define sustainability as "the capacity of a human, natural, or mixed system to endure or adapt indefinitely to endogenous or external change". That is, sustainability is an opportunity to respond to external and internal changes on the planet [11].

Afterwards the term “sustainable development” became widespread. As was stated before, the term was first presented in the “Brundtland Report”. As defined in this report, sustainable development means development that satisfies all the necessary needs of the present time and generation. On the other hand, it is of equal importance to ensure that this process does not impact or risk the capacity of future generations to grow in line with their own specific requirements [2]. The document focuses on environmental issues, the global situation of the population, food, energy, industry, human housing and the like.

The UN Millennium Development Goals served as the foundation for the Sustainable Development Goals, which contained eight goals ranging from reducing poverty to job security, education and the fight against infectious and dangerous diseases [4]. The UN Secretary-General’s report on the Millennium Development Goals “reaffirms that global efforts to achieve these goals have saved millions of lives and improved the lives of millions. The Millennium Development Goals (MDGs) have lifted over a billion people out of poverty and made huge strides in the fight against hunger” [12].

Subsequently, in 2015, in continuation of the Millennium Development Goals, the Sustainable Development Goals were presented, in a more complemented, detailed and consistent with the concept of sustainability. It was called “Transforming our World — the 2030 Agenda for Sustainable Development”, contained 17 Sustainable development goals with 169 targets [5]. The SDGs have profoundly altered the paradigm of development in comparison to the MDGs. In addition to targeting solely economic growth, the SDGs promote inclusive growth and sustainable development, allowing for integrated economic, social, and environmental development. The Sustainable Development Goals comprise six components: dignity, people, planet, prosperity, justice, and collaboration.

The concept of circular economy

The circular economy is classified as an interdisciplinary concept since it incorporates the findings of industrial ecology, ecological economics, and human resources and their management studies.

According to the research of domestic authors Ausharipova D.Y., Kulumbetova L.B., the principles of the circular economy are to minimize the use of primary resources. Thus, products and materials circulate in the economy. This leads to certain positive economic results. Such as, firstly, natural sources are preserved by controlling resource reserves; secondly, by designing materials and products for recycling, the use of resources is optimized, and, and finally, production is improved by reducing the negative impact on nature. The circular economy exploits the enormous economic potential contained in the materials already used by society [13].

As previously mentioned, the concept of a circular economy is a synthesis of various disciplines, so it is rather difficult to determine the origins of this concept. Several academics assert that the circular economy arose as a subset of sustainable development, but others contend that it is an economic theory in its own right.

Economic growth without any human and resource constraints has been discussed in many economic and environmental writings, although in fact it was directly opposite to the reality in which producers and consumers saw no limits. The first reference to the circular economy in the literature dates back to the middle of the 20th century. In 1966, the American economist Kenneth Ewart Boulding first introduced the circular economy as a whole concept. However, the concept initially had an exclusively ecological character. He thought that cyclicality is necessary for the continued existence of human life on Earth. In the long run, Boulding contended that linear economics is based on a misunderstanding of physical possibilities and resource limitations. As a result, he proposed the hypothesis of the Earth as a spaceship, viewing it as a closed cyclic system [14, 15].

The idea of a circular economy is not related to any specific area; it is rather a synthesis of interdisciplinary schools. In 1990, the famed environmental economists David Pearce and Turner provided a relatively accurate definition of the term “circular economy», influenced by the ideas of Boulding and other scholars who argued for a closed economy and environmental scarcity. Pearce and Turner hypothesized the link between the economy and the environment in their book titled “Economics of natural resources and the environment”. They identified the following functions of the economy that have an impact on the environment: the provision of resources, the assimilation of waste, and the maintenance of a life support system. An major problem is that the two scientists Kenneth E. Boulding and David Peace, who were influential in inventing the notion of the circular economy, possessed two quite different viewpoints on economic development. Pierce believed that with the right approach,

economic growth can benefit the environment, and this was his main idea of the relationship. And Boulding, on the contrary, argued that economic growth is not a profit, but a national cost [14, 15, 16]. It is probably these differences in the principles of the two founders of the circular economy that led to difficulties in definitions and the lack of a clear understanding of the theory.

Ever since Pearce and Turner coined the term "circular economy", numerous environmental researchers and economists have tried to give the term a clear definition.

The Ellen MacArthur Foundation produced one of the most prevalent definitions of the circular economy, which incorporates aspects from other disciplines. Foundation states that, "In contrast to the 'take-make-waste' linear model, a circular economy is regenerative by design and aims to gradually decouple growth from the consumption of finite resources. In a circular economy economic activity builds and rebuilds overall system health. The concept recognizes the importance of the economy needing to work effectively at all scales – for big and small businesses, for organizations and individuals, globally and locally" [17]. To put it another way, if a linear economy can be defined as one in which human activity results in the extraction of resources from the earth, the reproduction of a certain product, and the subsequent generation of waste from that product, then the circular economy can be understood as one in which the generation of waste is completely eliminated. That is, the path to non-waste. In accordance with Ellen MacArthur Foundation, the circular economy is based on three approaches: non-waste, recovery and product cycling.

Kirchherr, Reike and Hekkert were among the first to collect various theoretical interpretations of the term circular economy, analyze and give a clear definition. In their research work, the authors analyzed 114 definitions of the circular economy's ideas and came to the following: "Circular economy describes an economic system based on business models that replace the concept of end-of-life with reduction, alternative reuse, recycling and recovery of materials in production / distribution and consumption processes, thus working at the micro level (products, companies, consumers), meso-level (eco-industrial parks) and macro level (city, region, country and beyond) in order to achieve sustainable development, which implies the creation of environmental quality, economic prosperity and social justice, for the good current and future generations. This is made possible by new business models and responsible consumers" [18].

Therefore, the primary objective of the circular economy is to replace the present linear economy, which is associated with global economic and environmental issues. The circular economy was formed as a way to achieve the minimum cost of production resources, reduce waste and stabilize the environment. That is, through recycling, waste should become a new resource for creating a circular economy.

Results and discussion

In modern conditions of development, a fairly close relationship and interdependence between the three main components of sustainable development (social, economic, environmental) is considered particularly relevant. This is due to the fact that the significant consequences of climate change are becoming apparent, including the need to conserve limited natural resources, as well as the transition to a "green" economy. All these problems are reflected and need to be addressed in the three components of sustainable development.

These goals, objectives and indicators are determined by a large number of relationships between different thematic areas. Economy (goals 8, 9, 10 and 12), society (goals 1, 3, 4, 5, 11 and 16), environment (goals 2, 6, 7, 13, 14 and 15), and management (goals 2, 6, 7, 13, 14 and 15) are the four dimensions of the SDGs (goal 17) [19]. An interesting point is that the Agenda 2030 receives criticism in various theoretical aspects. For example, the SDGs have been criticized for the lack of a full theory of sustainable development, weak theoretical justification and lack of priorities among the goals and their targets [20].

Since the primary objective of this work is to identify the codependency between SDGs and the circular economy, let us dwell on the economic aspects in more detail. All goals 8, 9, 10 and 12 fit into the category, however, for a more constructive and detailed understanding, goal 12 becomes the main object. The reason for this is that Responsible consumption and production incorporates parts of the realization of the circular economy.

There are 11 specific targets of the goal 12.

The first 8 targets are given as a number of indicators (for instance, 12.1 and etc.) and reveals the main provisions for achieving the goal in stages.

According to UN's official web page, 12 include following targets:

"12.1. Through the introduction of decade-long initiatives and support to developing nations, industrialized nations should start the process of transition to the accurate and purposeful management of resources and the necessity of mastering rational consumption;

12.2. Efficient use of resources;

12.3. Reducing food losses;

12.4. Regulation of industrial and chemical waste in order to reduce harmful effect on people's health and condition of environment;

12.5. Reducing waste through proper waste management, sorting, recycling, and reuse;

12.6. Adopting waste management as a starting point on the road to reaching the target in all industrial and standard organizations;

12.7. Achieve sustainable public procurement in accordance with national regulations.

12.8. Goal 12 also emphasizes the need of providing information to all social actors".

The objectives indexed by alphabetic letters (such as 12a) emphasize the need for wealthy nations to assist developing nations, along with the significance of domestic product development, popularization, and market imbalance resolution [6].

Thus, it is possible to identify the factor of proper resource use, rational waste-free production, waste regulation and management at the local, regional, and global levels, control of greenhouse gas emissions, and the creation of a carbon-neutral society as one of the fundamental elements of sustainable economic, environmental, and social development based on the SDG goals and objectives.

In addition, since the adoption of the Sustainable Development Goals program, corporate behavior has received increased attention. The amount of requests for environmental considerations from citizens and society has increased dramatically, prompting enterprises to actively participate in preserving the circular economy. In addition to financial donations from business owners and entrepreneurs, substantial efforts are being made to raise environmental awareness. Added value is being developed, such as gaining market value and customer convenience, and training is being implemented to promote conscientious consumption and waste separation.

The circular economy concept, which emphasizes the cyclical movement of technical and organic elements, is especially appealing. Organic materials' cyclic movement allows them to return to the natural environment without harming it. Closed material cycles ensure that materials are reused, processed, rolled, and modified in the creation of products, enabling for more efficient use of natural resources.

The industrial economy's basic feature – a linear model of resource consumption based on the "Production – Distribution – Consumption – Waste" concept – is rigidly followed in the process of evolution and diversity (as shown in Figure 1). With this production model, the consumer receives a finished product manufactured from a set number of raw materials, which is then used once it has served its purpose. It's worth noting that the number of unnecessarily abandoned and unused items is on the rise, displacing natural human habitat [21].

Figure 1 – The concept of linear economy

Note: Compiled on the basis of the source [21].

International communities acknowledge the circular economy model as an alternative to the linear paradigm for generating economic development. It fosters the reduction of usage of natural resources and decreases the use of hazardous chemicals that prevent product reuse. In addition, this concept aims to eliminate all waste entirely. To this end, well-developed business models and eco-design, a strategy for enhancing the creation of materials at the pre-industrial stage, are used. Comprehensive in structure, the circular economy is a regenerative and restorative system that also helps to the

reduction of waste by generating a circular cycle in which the product is placed back into circulation again, through recycling or reuse. Figure 2 demonstrates that the circular economy is built on the "Production – Distribution – Consumption – Reuse / Recycle / Recover" model, which signifies long-term usage [22].

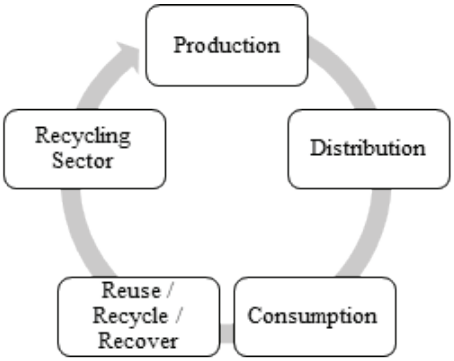

Figure 2 – The concept of circular economy

Note: Compiled on the basis of the source [22].

The concept of a circular economy (CE) is currently popular in academia circle. The significant development in the number of publications in several scientific databases at the same time demonstrates this. Both academics and practitioners are interested in the CE notion because it is a tangible indicator of the commonly debated concept of sustainable development. However, despite the concept's popularity, its theoretical foundation is murky, and a precise unambiguous definition of the term has been lacking for a long time. Although the concept existed as an economic model, it lacked a useful interpretation.

Since the second part of the 20th century, the implementation of a circular economy has gained speed owing to considerable environmental harm and uncertain rates for production resources. Governments and private business sectors are beginning to show interest in ways to implement this concept. Thus, circular process consist of R principles. In fact, it starts with 3R, reduce – reuse – recycle as shown in Figure 3, continuing it development to 9R.

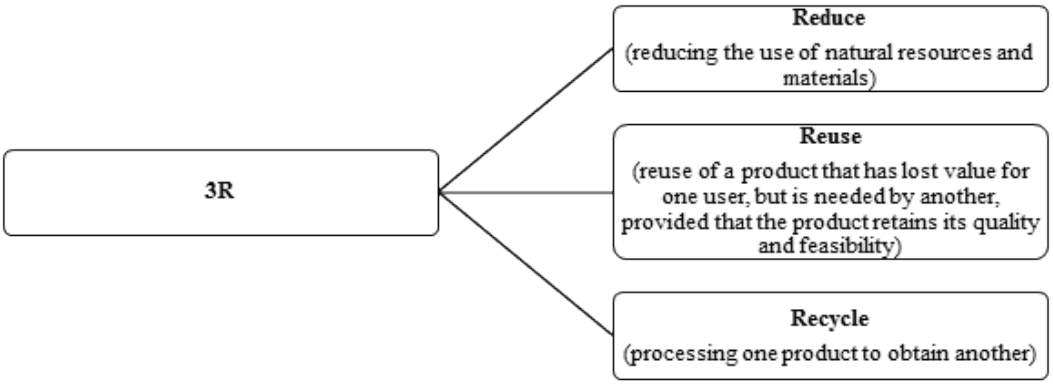

Figure 3 – 3R principles of Circular Economy

Note: Compiled on the basis of the source [24].

As sustainable development trends become widely known, the traditional waste management system has evolved in favor of components of the circular economy: that is, waste that was previously placed in only one place has moved to more waste disposal concepts, which are called the 3R concept.

Reduce refers to reducing the use of production factors in favor of reducing the amount of waste produced. Reuse involves the reuse of waste that is still usable.

The process of using previously discarded materials as raw materials in the production of new goods is known as Recycling. In most cases, the recycled material is used in the production of a product that is distinct from the original product.

With the spread of the concept of the circular economy, many developed countries have begun to put it into practice at the state level or at the level of private enterprises. So, for example, the implementation of the concept of a circular economy in Japan was carried out by intervening in legislation and introducing a number of rules and guidelines. Japan formulated the principle of a circular economy in 1999 and has been working towards a society based on recycling since then. Under separate disposal legislation, the volume of household garbage has decreased and the rate of recycling has increased dramatically. The Japanese government aimed to create a "Circular economy society" and realized a legal framework that later developed into a way of life for the Japanese. The main points in this project were the improvement of environmental education in schools and companies, the creation of conditions for the separate collection of waste, the provision of circular trading markets and the creation of waste recycling stations. A similar scheme was developed in Germany, where the introduction of the circular economy took place through the approval of legislations, policies and regulations. The circular economy has garnered attention in China as a possible option for attaining sustainable development. On the basis of a special program, China's circular economy was implemented at the macro, micro, and meso/interfirm levels, assuring the effective use of resources [23].

In addition to the previously mentioned 3R approaches, there are others, including 4R, 5R, and currently the most comprehensive 9R, each of which compliments the preceding one.

0R – Refuse – this stage implies the decision to refuse of the product at the stage of production planning, or at the stage of deciding whether to consume / purchase the product or not. Thus, as an example, cite the rejection of the use of plastic straws in favor of bamboo, etc. In addition, this is the process of replacing a single functional product with a multifunctional one with the least harm.

1R – Rethink – the process of considering the need / uselessness of the product. Intensive use of the purchased product with maximum benefit.

2R – Reduce – reduce the usage of natural resources and other materials, while generating the most functionally efficient product.

3R – Reuse – items in good quality can be reused.

4R – Repair – Items requiring repair must be repaired instead of replaced with a new one. Because the production of new products has a huge impact on the environment, the climate and the people who produce them.

5R – Refurbish – restoration of old goods for use.

6R – Remanufacturing – creation of a new product through the use of suitable parts of secondary goods.

7R – Repurpose – restore the value of a "discarded" product by using it for other possible purposes.

8R – Recycle – recycle material to obtain a new item of the same or lower quality.

9R – Recover – incineration to restore energy and maintain circularity [24].

Every aspect of economic activity participates, in some way, in the use of the components that comprise the circular economy. The transition from a linear to a circular economy is necessary for achieving sustainable development, and it may be accomplished by the acts of an individual person, an organization, a whole state, or even associations of states working toward a shared objective

The primary research areas in the field of circular economy include sustainable development in terms of industrialization and urbanization, product lifecycle management to decrease waste, eco-industrial symbiosis, and greening the supply chain [25].

The circular economy seeks to satisfy the social, economic, and environmental requirements of sustainable development by first restoring the original value of products at the end of their usage to ensure economic efficiency, and then reducing the negative environmental impact of operations designed to restore this initial value. In order to create a new economic model, governments in industrialized nations are modifying legislation and developing special support programs and projects for the development of a circular economy and its constituent aspects [26].

According to Pakhomova N. V., Rikhter K. K., and Vetrova M. A., the circular economy is the primary force behind the new industrial revolution and strives to accomplish two primary objectives. First, the circular economy implies that in order to achieve maximum economic efficiency, the value

of used natural resources and materials must be restored, as well as their deliberate and efficient use in the future. Thus, the first goal carries with it the implementation of the next interconnected chain. Therefore, restoring the value of resources that have been exploited leads to an improvement in the state of the environment, more aware production and consumption, and ultimately, compliance with the socio-economic and environmental objectives of sustainable development. As a result of the implementation of the above goals, sustainable values are formed that lead to development in all major life sectors [27].

The effectiveness of such an institutional and technological restructuring of the economic mechanism is determined by the completeness and equilibrium of the functional execution of processes utilized by the resource mechanism, as well as the centralization of results in each sector (public administration, organizations, households).

Many governments, particularly industrialized nations, are already working hard to implement the concepts of the circular economy because they recognize its significance in addressing the world's growing resource and environmental challenges [28]. The Netherlands, Japan, Austria, Germany, and the Great Britain are among these nations. The Chinese government is promoting a circular economy as a fundamental tool for reaching sustainable development goals [29]. Utilization of natural resources, investment policy goals, and scientific and technological progress are all consistent with this strategy, and the corresponding institutional modifications are intended to boost present and future capacity to satisfy human wants and aspirations.

In a circular economy, it is evident that the already-existing product, which must be pushed into the circular cycle, receives more attention than the manufacturing process. In other words, the circular economy places a greater emphasis on existing things, driving them through R activities such as reuse, recycling, and repair, etc. As a paradigm for sustainable development, the circular economy is applicable to all economic sectors. As a result of its recognition as an alternative to the linear economy in numerous international studies, circular economy already functions as an element of sustainable development in the economic systems of developed nations, but its implementation in developing nations requires further research and consistency.

Definition of the circular economy given by Kirchherr, Reike and Hekkert before, shows connection of circular economy in achieving sustainable development goals by mentioning waste disposal features and their common strategies in environmental, social and economic development.

Conclusion

Behind the development and expansion of the economy, which accompany production, consumption, and waste, is environmental degradation, lack of clean air and water, etc. In addition, as economic activity globalizes and their interconnectedness grows, concerns such as waste, which were previously handled at the local level, must now be solved by united global solutions, and the Sustainable Development Goals with the implementation of the circular economy is an excellent example.

Based on the results identified, the following conclusions were formulated:

1. The concept of development, sustainable development and its goals is in a constant evolutionary stream. So, for example, starting with the first international Summit and the Stockholm Declaration, over half a century, development plans of various stages and forms were formulated and supplemented.

2. The circular economy is intended to replace the traditional linear economy, which has resulted in devastating environmental and economic problems.

3. The research revealed the solution to the study question given in the introduction. Furthermore, sustainable development and a circular economy are dependent upon a balance between social, economic, and environmental factors. The success of one sector is directly dependent on the other two sectors and the destructive force. Second, the ideas of the 12th goal of sustainable development and the circular economy overlap in the areas of rational consumption, waste-free manufacturing, emission reduction, waste management, and recycling, as well as other global environmental and economic issues. The examination of the link between the ideas under discussion confirms that they share a global objective: the preservation of the planet's condition.

On this basis, we may conclude that both ideas are interrelated, and that the principles of adopting a cyclical economy can be used to reaching the 12th Sustainable Development Goal.

Consideration of the features of the application of the concepts of the circular economy in the state strategic plans of Japan as a potential field for further study and, if positive results of the study are identified, consider the application in the development of the circular economy in Kazakhstan.

Consequently, the scientific community, businesses, government agencies, and society as a whole must establish the notion of a circular economy and put its principles into effect.

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ТҰРАҚТЫ ДАМУ МАҚСАТТАРЫ АЯСЫНДАҒЫ АЙНАЛМАЛЫ ЭКОНОМИКА ТҰЖЫРЫМДАМАСЫ

Аңдатпа

Соңғы жүз жылдықта әлеуметтік-экономикалық прогресс – ресурстарды ұтымсыз тұтыну және өндіріс қалдықтары салдарынан қоршаған ортаның нашарлауымен қатар жүр. Экономикалық, әлеуметтік және экологиялық аспектілер арасындағы тепе-теңдікті сақтай отырып, аталған мәселелерді шешу үшін 2015 жылы БҰҰ «Әлемді түрлендіру: 2030 жылға дейінгі тұрақты дамудың күн тәртібі» жаңа жоспарын, оның ішінде тұрақты даму мақсаттарын (ТДМ) ұсынды. Өз кезегінде, айналмалы экономика тұрақты дамудың кейбір ең жаһандық мәселелерінің шешімдерін ұсынатын құрал ретінде танымал болуда. Бұл зерттеудің мақсаты тұрақты даму мақсаттарына қол жеткізудегі айналмалы экономиканың негізгі рөлі мен функцияларын анықтау болды. Зерттеу барысында айналмалы экономиканың теориялық негіздері және тұрақты даму стратегиялары талданып, терминдер арасындағы байланыстарды зерттеу үшін бар ғылыми әдебиеттерге шолу жасалды. Айналмалы экономикамен өзара байланыстағы 12-мақсаты – Тұтыныс пен өндіріс жауапкершілігіне ерекше назар аударылды. Қорытынды бөлімде ғылыми әдебиеттерді шолудан туындайтын тұрақты даму мәселелері мен айналмалы экономика тұжырымдамаларының маңызды ортақ принциптері мен құндылықтары анықталды. Зерттеу жұмысының нәтижелері қоршаған орта мен экономикалық басқару мәселелеріндегі тұрақты даму мақсаттарын жүзеге асыру бағытында теориялық және практикалық негіз ретінде қолданылуы мүмкін.

Тірек сөздер: тұрақты даму, экономика, тұйық айналым, тұрақтылық, жаһандық мәселелер, қоршаған орта.

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КОНЦЕПЦИЯ ЦИРКУЛЯРНОЙ ЭКОНОМИКИ В ОТНОШЕНИИ ЦЕЛЕЙ УСТОЙЧИВОГО РАЗВИТИЯ

Аннотация

За последнее столетие социально-экономический прогресс сопровождался ухудшением состояния окружающей среды в связи с нерациональным потреблением ресурсов и отходным производством. В целях ре-

шения данных проблем, соблюдая баланс между экономическим, социальным и экологическим аспектами, в 2015 году ООН представил новый план «Преобразование нашего мира: повестка дня в области устойчивого развития на период до 2030 года», в том числе и цели устойчивого развития (ЦУР). В свою очередь, экономика замкнутого цикла приобретает все большую известность как инструмент, который предлагает решение некоторых глобальных проблем устойчивого развития. Целью данного исследования является определение основной роли и функции экономики замкнутого цикла в достижении целей устойчивого развития. В процессе работы были проанализированы теоретические основы экономики замкнутого цикла и стратегии устойчивого развития, а также проведен обзор существующей литературы для изучения взаимосвязи между терминами. Особое внимание было уделено Цели 12 – Ответственное потребление и производство, – которая в наибольшей степени взаимозависима с экономикой замкнутого цикла. В заключение были выявлены значительные схожие принципы и ценности, которые вытекают из научной литературы по экономике замкнутого цикла и устойчивого развития. Результаты исследования могут служить теоретической и практической основой в достижении целей устойчивого развития в сферах экологического и экономического управления.

Ключевые слова: устойчивое развитие, экономика, замкнутый цикл, устойчивость, глобальные проблемы, окружающая среда.