

## TRANSITION OF THE REPUBLIC OF MOLDOVA TO A CIRCULAR ECONOMY – A NEW PARADIGM OF SUSTAINABLE DEVELOPMENT AND INNOVATION

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In the current stage of human development, the world community is increasingly realizing the harmfulness of neglecting environmental issues, especially since the linear economy also has certain limits for economic growth. It is clear that the issue of sustainable development and environmental conservation is relevant both globally and nationally. Overcoming the crisis is possible only due to the formation of a new type of relationship between man and nature, excluding the possibility of destruction and degradation of the natural environment. These activities are attributed to the circular economy, which is currently considered a new paradigm for sustainable development.

The international community first met in 1972 at the Stockholm Conference on Human Environment to discuss the issue of the global environment and development needs. The meeting was held under the auspices of the United Nations, developed and developing countries. It was found that the main problem of sustainable development is the contradiction between the needs of population growth and the constraints imposed by the existence of planetary resources, but also by the continuous degradation of the environment [1, p. 51].

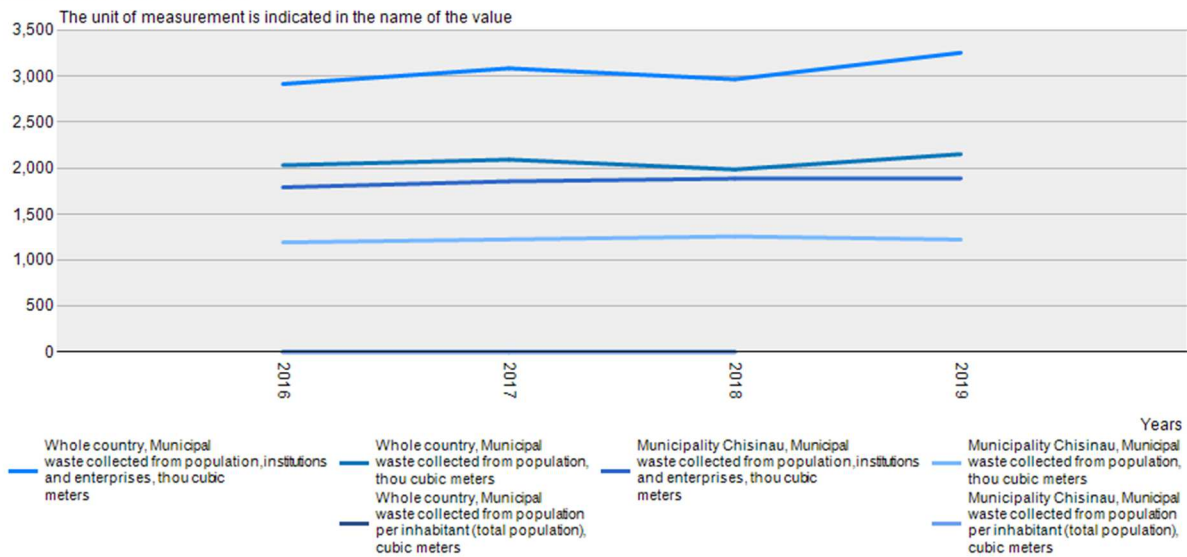
Subsequently, in order to overcome the environmental crises, achieve a stable economic development and preserve the potential of natural resources at the XIV General Assembly of the International Union for Conservation of Nature and Natural Resources, a new Global Development Strategy was adopted. Humanity, called *sustainable development* [2].

**Discussions and solutions.** In the autumn of 2020, the European Commission adopted a new Action Plan for the Circular Economy – one of the main constituents of the European Green Pact – the Europe's new agenda for sustainable growth. The circular economy will have positive net benefits in the form of GDP growth and job creation, etc. The Community Executive wants to ensure that less waste is produced and, to this end, attention will be paid to avoiding the production of waste as a whole and turning it into high-quality secondary resources that benefit from a functioning secondary raw materials market. In this context, we note that the Republic of Moldova must concentrate its efforts, because only last year three million cubic meters of garbage were collected, of which two million are thrown by the population, the rest – by enterprises. This amount also includes toxic waste: batteries, equipment, medical substances, thermometers. But no one knows the exact volume of toxic waste in Moldova [3].

According to data generalized by the National Bureau of Statistics, the entire amount of municipal liquid and solid waste transported in territorial profile have been deposited on controlled land and currently only this disposal method is applied for this category of waste [3].

The average recycling and reuse rate of hazardous waste is about 90%, which is the export rate for the final disposal of waste.

Municipal waste collected from population, institutions and enterprises by Districts/Regions, Indicators and Years.



**Figure 1. – Municipal waste collected from population, institutions and enterprises\***

Source: elaborated by authors in base of data provided by the National Bureau of Statistics.

**\*Footnotes:** Municipal waste: household and similar waste from commercial, industrial and administrative activities, which include waste from parks and gardens, leaves, grass, waste from streets, markets and street sweepings, containers. Waste from municipal sewage network and as well as construction waste is excluded.

The recycling and reuse rate of production and consumption waste for 2018 is approximately 41.4%, registering an increase of 49% compared to 2011 in which 418 thousand tons of waste were reused out of a total of 1999 thousand tons generated [4].

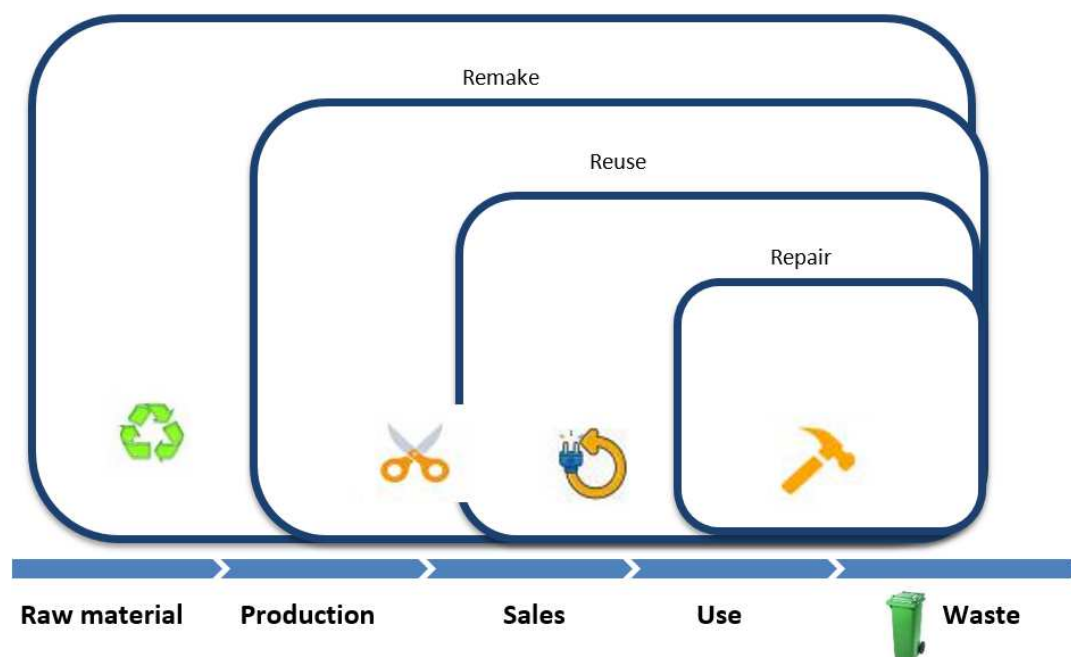
Thus, we find that our country lags significantly behind many countries in implementing the principles of the circular economy, which is mainly due to the lack of a comprehensive concept of the country's transition to sustainable development.

The society has realized the need to change the paradigm of civilization development, to move to a new model of human development with intense emphasis on keeping the ecology intact, while achieving the complexity of solving problems in this context, but the main notions that are integrated in the sustainable development of the planet are not yet clearly defined. In this context, *the circular economy* becomes a new paradigm, an economic circuit in which, from the design phase, everything is designed in such a way that what enters a product or process, falls into two categories: either it is a biodegradable component, or is a component with a maximum recycling potential.

Circular economies are growing in popularity worldwide. Many developed countries are actively introducing state policy to achieve a circular economy. The transition to this economic model requires a multidimensional approach, new technologies, financing and business forms, the availability of society as a whole to change its habits and create new models of interaction.

Waste is traditionally seen as a source of pollution. But well-managed waste can be a valuable source of materials, especially when raw materials start to run out. Any waste deserves a second chance and thus can be repaired, reused, recycled or turned into fertilizer -

it's just a matter of proper sorting and proper waste management. The best option is to stop waste production. And when that's not possible, other good options are reuse and recycling.



**Figure 2. – The circular economy model valid for the Republic of Moldova**

Source: *elaborated by authors.*

Reusing objects has many benefits, including reducing the demand for natural resources, saving energy, reducing waste and saving money. You may not need your old clothes, books, bags, furniture, or cell phones, but someone else may have them. Have you considered selling or donating items you no longer need through online or exchange stores, or exchanging with friends? You can also contribute by buying second-hand clothes or other products. Consider buying reusable products instead of disposable products when you have this option – for example, rechargeable batteries – and reuse the goods for another purpose, if you can. Large plastic food containers are ideal for the fridge, jam jars for spices, and old greeting cards for gift labelling or collages.

Recovery and recycling are considered the best options after reuse. Through recycling, used goods are transformed into new products, which contributes to saving limited resources and protecting natural habitats. Recycling also avoids water and air pollution, generated by mining, stone quarries and forestry for raw materials, and requires less energy to manufacture new products compared to raw material production. It also reduces the amount of waste that ends up in landfills or waste incineration plants, which are the main sources of methane emissions, a greenhouse gas with an impact 20 times greater on climate change than the carbon dioxide.

The efficient waste management consists of minimizing waste production, recovery, recycling, reuse and recovery, including biodegradable waste, and promoting modern technologies in the field. Waste is traditionally seen as a source of pollution, but well-managed waste can generate additional benefits such as reduced demand for natural resources, saving energy and financial resources. Transforming waste into reusable resources – raw material, is the main objective of the circular and ecological economy which

involves the process of a more efficient management of raw materials, innovation in product design and manufacturing in order to reduce the amount of packaging and training staff in terms of waste management. The measurement and monitoring of the volumes and flows of waste generated allows the identification of the weekly or monthly volume produced on each type of waste. Paying attention to the weight of waste can help implement a better sorting system for recycling, reuse and preventing the generation of unnecessary waste and reducing collection costs.

In order to establish the new economic model, the governments of the developed countries reform the legislation, implement social programs to support the development of the circular economy and its individual components. In this regard, the implementation of the 2030 Agenda for Sustainable Development of the United Nations, adopted on 25 September 2015, sets a global framework for achieving sustainable development by 2030. It includes an ambitious set of 17 sustainable development goals for sustainable development, in particular we would like to highlight the Goal 12 of sustainable development, which brings to the fore the need for the integrated promotion of environmental, social and economic elements.

In this context, we note that for the restart of the national economy in the context of sustainable development it is essential to understand that streamlining production processes and improving management systems at the economic entity level, significantly contributes to reducing environmental pollution, waste generation, energy saving and financial resources. Thus, the transition of the Republic of Moldova to the circular economy could bring benefits such as: reducing the pressure on the environment, improving security of supply of raw materials, increasing competitiveness, stimulating innovation and economic growth, job creation, etc. In order to successfully manage the existing business, resources and costs, it is necessary to implement a management system. Implementing eco-innovative strategies and ideas to improve the products and services provided is a solution for introducing new or significantly improved products, as well as environmentally friendly technologies in production processes, which reduce the use of natural resources, including materials, energy, water, and decrease the release of harmful substances throughout the life cycle. The application of standards in business entails the realization of greening actions that are economically justified and represent strategic tools that diminish costs by reducing errors, risks, losses and increasing productivity. By implementing standards, certified and quality products can be created and offered, which allows access to new markets and participation in free and fair trade.

At national level, a set of regulations has been approved to confirm the need to change the development paradigm in favour of the circular economy:

- Association Agreement between the Republic of Moldova, the European Union and the European Atomic Energy Community, including their member states, approved by Law no. 112 of July 2, 2014;
- Law no. 1515 of June 16, 1993 on environmental protection;
- Law no. 209 of 29.07.16 on waste;
- Government Decision no. 248 of 10.04.2013 for the approval of the Waste Management Strategy in the Republic of Moldova for the years 2013-2027;

- Government Decision no.99 of 30.01.2018 on the approval of the Waste List;
- Government Decision no. 501 of 29.05.2018 on the record and transmission of data and information on waste and their management.

In 2019, the Government of the Republic of Moldova, in the context of minimizing consumption and moving to a new model of economic growth, approved the Government Action Plan for 2020-2023. The document was approved by the Executive and published in the Official Monitor publication [5]. In supporting and strengthening this model, we consider it appropriate to place a special emphasis on the distribution of the country's productive forces based on arguments in favour of the rational use of natural resources, as well as the review of ecological management based on principles of ensuring the national security and environmental of the state. The mechanism of the efficient implementation of this model will ensure a balanced socio-ecological economic development in the country, but also highlights the need for a comprehensive assessment of causal processes in the individual-society-environment system.

So, as a result, we find that *sustainable development involves the efficient and equitable distribution of intra-generation and inter-generational resources with the functioning of socio-economic activities within a finite ecosystem, and in this context, the circular economy is that production and consumption model that involves sharing, reusing, repairing, renovating and recycling the existing materials and products as much as possible*. In this way, the product life cycle is extended. On the other hand, it presupposes a dynamic balance in the process of interaction between the population and the ability to use the environment so that the population develops to express their full potential without producing irreversible adverse effects on the environment in which they are and on which they depend. It seems logical that sustainable development based on the circular economy requires human activities to clearly measure people's ability to meet their needs and desires, without depleting the resources at their disposal. Therefore, this requires a review of humanity's vision of how it should manage its economic and social activity in relation to the ecological resources available for its development.

The development of new sustainable business models that promote the efficient use of resources is the key to a circular economy in the country. In this regard, it is important to identify the characteristics of the transition of the Republic of Moldova to the circular economy and to determine the main indicators of sustainable development. The prospects for the transition to the circular economy can be identified as: further dissemination of the global experience of economic growth based on sustainability; ensuring environmental protection in the context of modernizing the economy and introducing resource-saving technologies with an emphasis on energy efficiency; increasing the share of renewable energy sources; and so on. The circular economy applies to all sectors of activity with the capacity to achieve synergies, which by cumulation can determine new development opportunities.

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### **ПЕРЕХОД РЕСПУБЛИКИ МОЛДОВА К ЦИРКУЛЯРНОЙ ЭКОНОМИКЕ – НОВАЯ ПАРАДИГМА УСТОЙЧИВОГО РАЗВИТИЯ И ИННОВАЦИЙ**

*Преодоление глобального кризиса возможно только за счет формирования нового типа взаимоотношений человека и природы, исключающего возможность разрушения и деградации природной среды. Эти виды деятельности относятся к циркулярной экономике, которая в настоящее время считается новой парадигмой устойчивого развития. В этом контексте актуальность исследования заключается в сложности событий, оказавших влияние на экономическое развитие нашей страны. Цель исследования - доказать, что переход Республики Молдова к экономике замкнутого цикла может ввести новый вектор развития. Для выполнения этого исследования использовался обширный методологический инструмент, который включал методы синтеза, индукции, дедукции, сравнительного анализа и прогнозного анализа и т.д.*

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Рассмотрены демографические и миграционные процессы в контексте устойчивого развития экономики; обозначены теоретические основы, практические аспекты управления человеческими ресурсами; выявлены и систематизированы драйверы инклюзивного экономического роста в Беларуси и за рубежом; раскрыты актуальные финансовые и экономические аспекты развития отраслей; приведены актуальные проблемы и тенденции развития логистики на современном этапе; отражены современные тенденции совершенствования финансово-кредитного механизма; освещены актуальные проблемы учета, анализа, аудита в контексте устойчивого развития национальных и зарубежных экономических систем; представлены новейшие научные исследования различных аспектов функционирования современных коммуникативных технологий.

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