

# New ecological approaches in contemporary economic thought

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**Abstract.** *Authors start with the idea that environmental resources are an integral part of the economic resources and are becoming scarce, causing the environmental issues to become part of the economic research. Consequently, the modern economic concepts need to be supplemented by the ecological ones: authors approach three recently emerged concepts related to this sphere: circular economy, green economy and blue economy. A close examination of their features leads to the conclusion that they can be integrated into a distinct synthetic approach that the authors have named the “econological approach”, which differs from the traditional economic approaches in its purpose, priorities and periods of manifestation.*

**Keywords:** *circular economy, green economy, blue economy, econological approach, economic and ecological circuit.*

## Introduction

Economics is concerned with the optimal allocation of the relatively scarce economic resources. As 40% of the economic activities rely on products and processes generated by the environment, environmental resources became an integral part of the economic resources. The interaction between nature and society reached a turning point when humankind had sufficiently advanced towards the planetary boundaries of existence. According to Rockström’s research [5], humankind has already exceeded the 3 out of 10 planetary boundaries of existence: loss of biodiversity, climate changes and the manifestation of the azote cycle. This state of affairs determines a deepening of the multidimensional ecological crisis in the following fields:

- provision of non-renewable energy resources;
- food security because of insufficient arable land, climate changes and the genetically modified agricultural products;
- provision of quality drinkable water in many regions;
- maintenance of the oxygen balance because of abusive land clearing;
- preservation of the biodiversity as there is a major threat of a new global extinction.

The irrational and excessive usage of the natural resources leads to an increased ecological impact in relation to the global biocapacity and the increasing opportunity costs resulting from the non-re-usage of waste. Environmental degradation losses are estimated to 7 trillion USD annually. Thus, there is a tight correlation between the ecological and the economic issues.

## Fundamentals

Theoretically speaking, the interaction between economy and ecology manifests itself in the transition from the model of circular economic flows to the economic and ecological circuit. Therefore, traditional macroeconomics analyses the economic system from the perspective of production activities, exchange and consumption of goods and services and shaping it as a real flow of goods and factors of

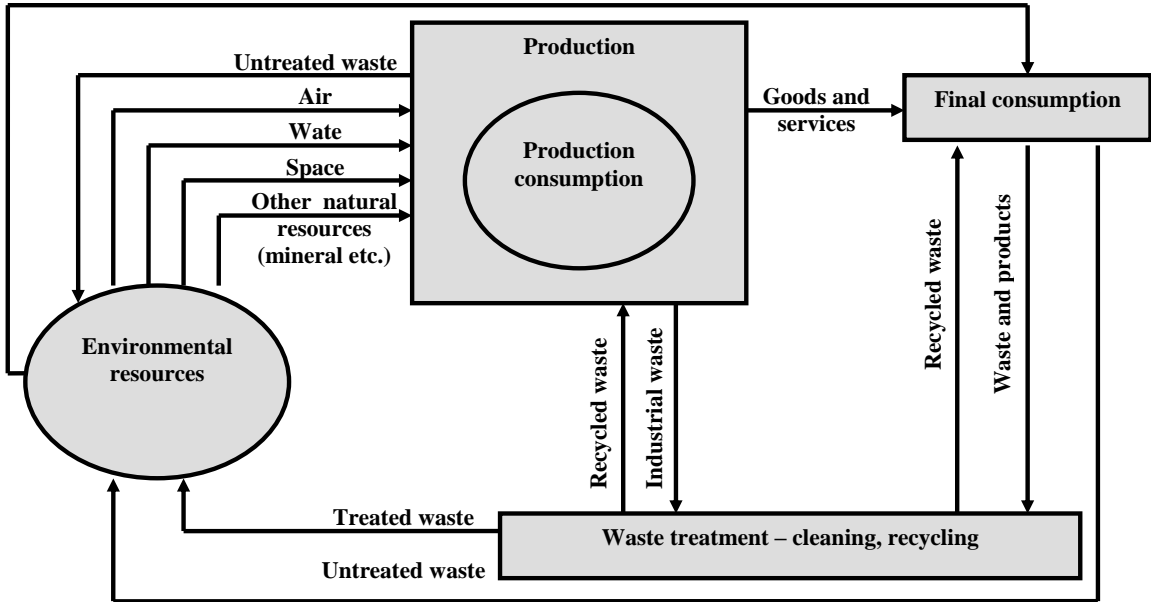
production and as a monetary flow of earnings and spending.

According to this approach, the economy is viewed as a closed, self-sufficient system. But in reality, economic activity *relies* on the natural

resources, and, in its turn, has an impact on the environment through pollution and the management of waste. Consequently, it should not be looked at as an isolated and self-regulating system, but as a subsystem of a larger system, - the ecosystem -, depicted in figure 1.

**Figure 1. The economic and ecological circuit**

Source: [4, p.74]



In economic thinking, this change has generated new concepts related to economy and ecology, the most important of which are the following: the concept of *circular economy*, the concept of *green economy* and the concept of *blue economy*.

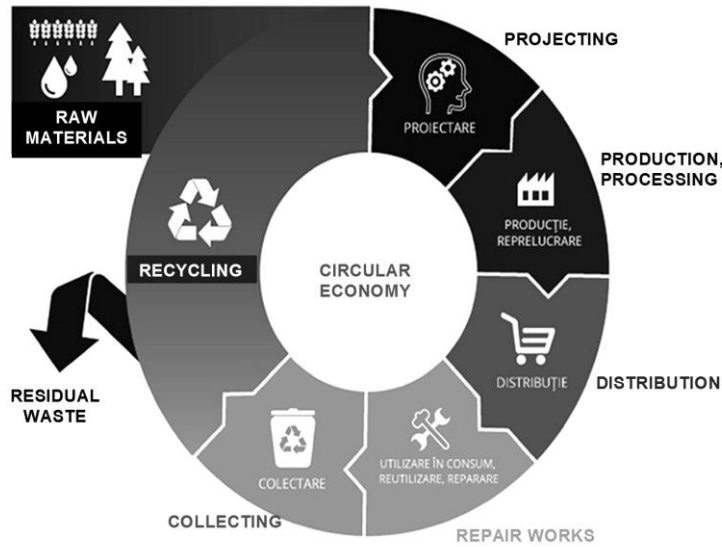
**The concept of circular economy**

The scarcity of non-renewable resources and an increasingly volatile nature of their prices call for a reduced consumption of the raw materials. This idea is developed in the concept of circular economy, which is conceived as an economic system of exchange and production inclined to increase the efficiency of using the resources and decrease the impact of production on the environment at every stage of the product’s life cycle.

The concept of the circular economy was inspired by M. Braungart and W. Donough’s research and further developed by the members of the Ellen MacArthur Foundation, carried out in the annual reports “Towards the circular economy” (Vol. I -2012, vol. II – 2013 and Vol. III – 2014). This concept ensured the transition from a linear approach to the economy (extraction – production- consumption –waste) to a circular and optimised approach (Figure 2). Such an economy implies a dramatic reduction in the use of chemical materials and opts for the use of renewable materials to ensure a full recycling of the products. The report “Towards the Circular Economy” states that applying a circular economy could generate savings in the costs of the production materials worth 520-630 billion USD [6, p.7].

**Figure 2. Mechanism of circular economy functioning**

Source: [7]



There are three major policies that can be applied in order to put the circular economy into practice:

- encouraging research and innovation to develop economical technologies for the usage of raw material;
- applying the principle: “the polluter pays”;
- changing the consumption and production patterns.

Because this model of economy can yield enhanced competitiveness through the reduced usage of raw materials, implying lower production costs, and through the creation of new, highly qualified workplaces, it has been acknowledged and applied by international economic institutions, “The Roadmap to a Resource Efficient Europe” [8], elaborated by the European Union, serving as a proof of that.

### **The concept of green economy**

The concept of the green economy was put forward by international institutions (OCDE, PNUE, OIT, and BM) and applied after the international conference “Rio + 20” held in 2012. Being plainly defined as a source of welfare and social equity combined with a considerable reduction of the environmental risks and of the

ecological deficit, the above-mentioned concept, theoretically, relies on three basic axioms:

- An unlimited extension of the process of production in a limited area is impossible;
- The satisfaction of countless needs by limited resources is impossible;
- Everything on the face of the Earth is continuously interacting.

Therefore, the conclusion supported by the proponents of this concept is as follows: sustainable economic growth is impossible; there is only room for sustainable economic development, based on policies and investments in eco-technologies that will diminish the dependence of the economic growth in the currently intensive consumption of raw materials and energy. This is because the cleaning costs do not exceed the pollution costs. The publication “A guidebook to the green economy” [9] depicts the conditions, mechanisms and instruments of the policy of green economy (Table 1). Experts claim that the “green” script, for the world economic development, could ensure, by 2050, an increase of 16% in the world real GDP and a 14% increase in the per capita GDP, as well as reducing the world consumption of energy by 48% in comparison with the non-sustainable

development patterns [10, p.4]. This growth cost is estimated to 1.3 trillion USD annual investments in eco-technologies involved in such activities as agriculture, pisciculture, forestry, the public utility sector, industry, transportation, tourism, waste management and management of the water resources. We believe that this concept is valuable and applicable both globally and locally. It represents a real solution

for increasing the efficiency of using the natural resources, diminishing the degree of dependence on the imported energy resources and involving the unemployed into eco-activities. However, its implementation is very costly. This determined the emergence of an alternative concept - the concept of blue economy.

**Table 1. Framework of policies concerning green growth for the developing countries**  
*Source: [1, p.11]*

6 conditions to enable green economic growth	Restructuring public expenditure
	Supporting education and professional development
	Applying a more efficient legislation
	Having special requirements for rights on resources and land
	Creating certain conditions to enable exchange of experience
	Enabling companies to integrate sustainable and equitable practices as soon as possible
4 mechanisms to integrate green growth	Reconsidering environmental costs
	Assessing the environment strategically
	Setting up Boards for sustainable development
	Greening accounting
8 instruments of the green growth policy	Certifying sustainable production
	Reforming the subsidy system
	Making payments for environmental services
	Adopting a tax reform on environment
	Investing in green energy
	Setting up green social entities
	Making sustainable public acquisitions
	Encouraging green innovation

**The concept of blue economy**

The concept of the blue economy was put forward by Gunter Pauli – the founder of the initiative “Zero emissions”. His work “The Blue Economy: 10 years, 100 innovations, 100 million

jobs” [11] emphasises a number of features that distinguish the blue economy from the green economy. Firstly, the “green” solutions are designed only for the very few and very rich. Secondly, the green economy calls for subsidies

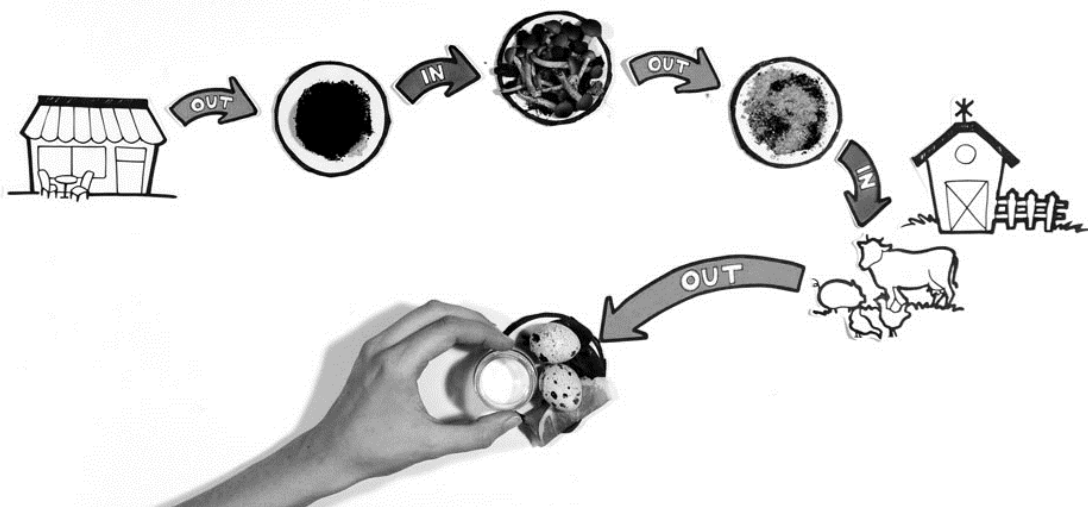
that make it expensive and non-competitive, ensure smaller profits for investors and compel consumers to settle larger bills.

The blue economy does not require subsidies, which are a very important feature under budget deficits that many developed countries must deal with. Moreover, it opts for lower prices on high-quality products. As lower prices for high-quality products can be reached only by using new technologies, the proponents

of the blue economy encourage extensive innovation and development of the entrepreneurial spirit. Pauli described and analysed 100 innovations related to the management of natural resources. case study no.3 can serve as a relevant example: “Only 0,2% of the biomass used in a cup of coffee is consumed; the rest of it is thrown away” (figure 3).

**Figure 3. The model of the blue economy depicted by Gunter Pauli**

Source: [3]



In this case, a company with 200 employees located in Holland collects garbage from coffee shops and subsequently uses it in a mushroom farm. Thus, growing mushrooms on oak wood, which is an expensive process, is replaced with growing mushrooms on a coffee bed that offers the necessary wood mass and fosters growth. The caffeine from coffee waste enables mushroom maturity in 3 months rather than the commonly accepted 9 months, which considerably decreases the price of this luxury product. We must consider the fact that the raw materials are free of charge and the coffee shops pay for this “waste disposal “. This innovation converts Methane into CO<sub>2</sub>, provides food safety and generates 50 million places of work [2].

To assess the extent of using eco-innovations, a score for every country within the

European Union is calculated based on data related to five different aspects: the contribution of eco-innovations, activities related to eco-innovation, the products of eco-innovation, the efficiency of the resources and the socio-economic outcome. We believe that underdeveloped economies, including that of the Republic of Moldova, must convert these theoretical notions into *actions* and *plans of activity* at the micro level as well as into *strategies* and *environmental policies* at the macro level with the view to ensuring a sustainable ecological transition. These three concepts make up a new theoretical approach which can be named - the “econological” approach. This approach differs from the traditional economic approach in the following key aspects (Table 2):

**Table 2. Distinctive features of the traditional economic approach and the ecological approach***Source: Authors' synthesis*

Criteria	Economic approach	Ecological approach
<b>Purpose</b>	Optimal allocation of relatively scarce economic resources to ensure economic balance	Determining the optimal scale of activity to ensure anthropocentric optimum
<b>Priority</b>	High level of economic efficiency	Ensuring sustainable human development
<b>Length of time</b>	Short and medium- term focusing	Long-term focusing

### Conclusions

The concept of *circular economy* implies the creation of an economic system that is inclined to increase the efficiency of using resources and decrease the impact of production on the environment at every stage of product's life cycle. A comparative analysis of the concepts of "green economy" and "blue economy" emphasises a fundamental difference in the approach of the matter at stake. The supporters of the idea of a green economy claim that continuous economic growth is impossible due to limited space and resources. They believe that sustainable development should be supported by the state authorities through the instruments

of economic policy and through a heavy investment in environment-friendly technologies and "green" jobs. By contrast, the representatives of the blue economy believe that economic growth can be sustained through the encouragement of innovations and the development of the entrepreneurial spirit: people themselves, and not the state, can create their own sustainable future. A synthesis of these two innovative concepts generates the idea that they can be structured within a new distinct theoretical approach – the "ecological approach". The content of this approach in terms of policies targeting the protection of the natural environment justifies its inclusion in the field of normative analysis.

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