

THE RELATIONSHIP BETWEEN THE ECOSYSTEMS, ECO-SOCIETY, AND GREEN ECONOMY, AS DECISION-MAKERS FOR ORGANIZATIONAL AND IMPLEMENTATION OF ENVIRONMENTAL POLICIES

Constantin Aurelian IONESCU, Lecturer
Faculty of Economics, Hyperion University,
ionescuaurelian89@gmail.com

Mihaela LIXANDRU (LEASA LIXANDRU), Ph.D. Stud
IOSUD-SDSE Valahia University of Targoviste, Romania
mihaelalixandru89@yahoo.com

Liliana PASCHIA, Lecturer
Faculty of Economics, Hyperion University
paschialiliana@gmail.com

Mihaela Denisa COMAN, Researcher
Institute of Multidisciplinary Research for Science and Technology, Valahia
University of Targoviste
cmndenisa@gmail.com

Dan GROZA, Ph.D. Stud
IOSUD-SDSE Valahia University of Targoviste, Romania
aldgroza@yahoo.com

Abstract: *The relationship between the ecosystems, eco-society, and green economy, as decision-makers for organizational and implementation of environmental policies, must enable the accounting framework to be conducive to create a close connection between the entity and the environment and to prepare the implementation of the organization's environmental policies. The awareness of the need to treat as decision-making factors of the relations between the three items will lead to the improvement of the long-term activity and at the same time to the increased environmental protection. The objective of this article is to value the necessity to consider the relationship between ecosystems, eco-society and green economy to obtain the best results both for the organization and environment.*

Keywords: environmental impact, ecosystem, environmental policies, protection of the environment, eco-society, green economy

JEL Classification: Q57, F60, O10

1. Introduction

The 21st century is characterized by the researchers and decision-makers' concerns on climate change, population growth, resource depletion and food security. Over the past few years, the concern for climate change has become a central issue for both the researchers and environmentalists and governments around the world. Thus it has triggered the need to design and develop global policies to combat the negative impacts of climate change. They found that the way the modern economy works generates

pollution, which poses a fundamental threat to the survival of the current and future generations. The modern economy age is entirely based on oil exploitation, but there is a growing need for a green economy – an economy which aims at the rational use of the limited natural resources, the development of human well-being, the job growth, and the minimization of the social exclusion –to resolve the conflicts and tensions generated worldwide by the inequalities between the rich and the poor (Molly Scott Cato, 2009, p. 9). At the same time, the modern economy is focused mainly on quantity, while the green economy is concerned with both quality and human well-being. The profit – and hence the economic growth – is the major mobilizing factor of the economic activities, nevertheless, according to the green economy, these goals can be fulfilled by meeting a few requirements: respect for nature, a rational use of resources, and increased use of renewable, as well as the implementation of advanced manufacturing technologies which can achieve the best results possible with the lowest consumption of resources.

The green economy needs a mentality change in case of the economic entities (which should focus not only on profit and therefore on economic growth) towards an outlook which can suit a long-term sustainable economy, through the following: productivity maximization, improving the quality of goods, waste minimization, collection, recycling and transformation of the wastes into reusable raw materials, a reduction of both the pollution and of the consumption of gas, water and electricity. The green economy requires a change of mentality at individual level and then generalized at global level in terms of resource use - by becoming aware both of the facts that we live in a limited resource environment and also a limited space for waste storage and absorption, and especially that the whole humanity is responsible for the future of the next generations (UNEP, 2012, p.6).

The transition from the modern economy to the green economy implies the emergence of a new mentality in case of the economic entities, and also the creation of new professional qualifications and training of professionals who can work as members of a multidisciplinary team. Under these evolutionary circumstances, we can also expect that the educational system can converge towards a multidisciplinary system, which can integrate the environmental education into the formal education, and which, by doing so, will have the capacity to train the experts who will be able to green the industry sectors (UNEP, 2012, p.6). Increased research and innovation investments, technology development, and continuous knowledge lead to an acceleration of economic growth for the countries which have been allocating sufficient resources to these areas. However, we need to emphasize that the efforts made in the research field should direct towards: making effective the use of the non-renewable resources, the increased use of renewable sources, wastewater collection and treatment, water desalination, green building construction, green technology and industrial equipment; solid waste collection, recycling and transformation, finding potential substitutes for chemicals, reducing the air pollution, air treatment, industrial symbiosis, natural composting processes, etc. (Philippidis G., M'barek R., Ferrari E., 2016).

Achieving an efficient transition to the green economy is determined by the roles of the public and private sectors, which can impose on the civil society the need to achieve sustainable economic development that does not jeopardize the future of the next generations. Thus, the private sector, which is aware of the current reality, in conjunction with the needs and priorities of the local communities, can contribute to achieving sustainable development goals. Ensuring an effective public-private partnership can lead to strengthening the efforts and increasing the achievement of sustainable goals. At the same time, the financial sector, both private and public, can help support and finance projects concerning sustainable development. The government and state institutions can provide funding or stimulate both the economic entities and the population to use and implement innovative technologies that meet the sustainability goals (Hecht, Joy E., 2000). This study aims to highlight the necessity of establishing a link between ecosystem, eco-society, and green economy, a relationship of interdependence, causality, and circularity, which can and must lead to optimum results concerning the environment, and people, and economic entities as well.

2. Consideration about ecosystems

All human activity is correlated and guided by the evolution of ecosystems, which can be natural, human-induced, or as a result of human activity - from resource exploitation, pollution, etc. The following considerations characterize the functioning of an ecosystem (UN, 2014): structure; composition by living elements: microorganisms, flora, fauna, etc., and by structural components: soil, water, air, ores and minerals, etc.; functions (nutrient recycling, nutrient circuit, etc.); processes (photosynthesis, water circuit, energy flow, mineral circuit, decomposition, etc.). Ecosystems are the basis of life and all human activities, offering a wide range of goods (EU, 2010): food (vegetables, fish, meat), water, wood, fuel, and services (supply services, assistance and regulation services, and cultural services).

Services offered by the ecosystem can be synthesized as follows (UN, 2014):

a) Supply services: *Water* - for domestic use, agriculture, animal husbandry, production, hydroelectric and thermoelectric power generation; *Materials* - plants from spontaneous flora and animals, freshwater plants and fish, seaweeds and marine animals which are primary nutritional elements, nutrients and natural food for cultivated biological resources (crops and vegetable products, timber and cotton, cattle and dairy products, aquaculture food), plant fibers and animal components (timber, straw, algae, shells, leather, and bones for further processing in the manufacturing industry (fertilizers) or final consumption), herbal and animal chemicals (biochemical's such as rubber, enzymes, resins, oils, waxes, herbaceous substances) used in cosmetics, medicine, household or for further processing in industry, genetic material (genetic material for propagation of organisms (crops, livestock, aquaculture), etc.; *Energy* - energy resulting from the use of biomass (wood used as fuel, algae to be harvested for biofuel, garbage, grease, oils).

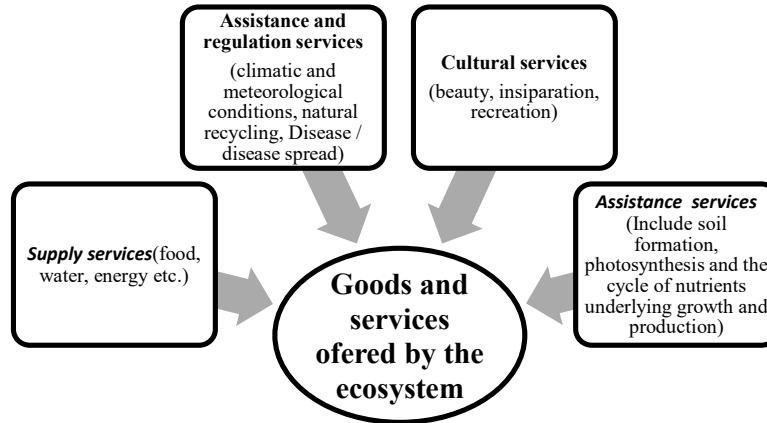
b) assistance and regulation services: *Bio-restoration and biophysical regulation of the environment* - Bio-restoration (chemical detoxification, reduction of plant pollution, algae, microorganisms and animals) to reduce the level of pollution, reduce soil and water contamination; dilution, filtration and capture of pollutants; *Flow control* - airflow control (natural or planted vegetation that serves to create protection belts or to provide air purification services) with effects such as the decrease of storm intensity, the decrease of dust level in the atmosphere, the improvement of the ventilation and atmospheric temperature attenuation in the urban areas; water flow controlling (adjusting time and amounts of atmospheric precipitation, flood prevention and regulation of running water levels) having a significant role in the prevention of natural disasters; controlling the soil geological structure that prevents soil erosion, avalanches, and landslides; *Regulation and control of the environment from a physical-chemical point of view* - atmospheric control (carbon dioxide capture, maintenance of the urban climate, etc.) with effects on the reduction of the greenhouse gases in the atmosphere, reduction of the climate change; water circuit; control of pedogenesis and soil quality (maintenance of soil fertility and the cultivated systems structure) with consequences such as improving soil fertility and increasing crop productivity; adjustment of noise pollution; *Biotic environmental control*: life cycle control and habitat perennality (pollination, seed dispersal, habitat, and young populations preservation) which contribute to improving crop productivity and habitat conservation; control of diseases and pests (control of pathogens) with effects such as reducing diseases and pests in crops.

c) cultural services: *Information and knowledge* - Knowledge on landscapes and biodiversity for scientific research, education and recreation; *Spiritual and symbolic* - Landscape, species biodiversity, heritage values, group identity, spiritual or religious functions.

The eco society can be defined using a three-dimensional vision. The first dimension consists of the ecological education of the inhabitants, the development of a mentality, both at the collective level and the individual level, with a broad view on environmental issues, the need to protect the environment and hence on the directions of action that need to be implemented to live in a green, sustainable society (UNEP, 2011). The second dimension consists of the transformation of the current cities into ecological cities, whose environmental performance can be quantified through: pollution level, carbon emissions, waste recycling volume and rate, energy consumption, as well as the share of generated and used green energy, water consumption and water quality, green spaces extension rate, biofuel consumption rate,

etc. And last but not least, the third dimension of the eco-society consists of the reflection as rates of the following indicators: the living standard of the population, the control of diseases, ensuring the progress towards sustainable consumption, the rate of ecological machinery use, ecological motorization of public transport, etc.

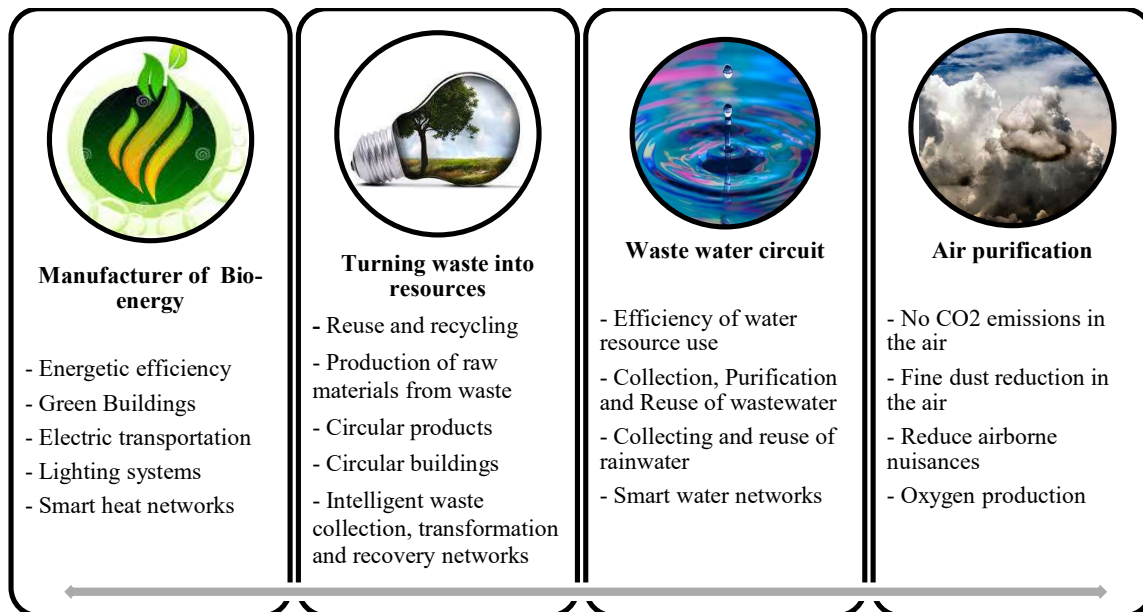
Figure 1. Goods and services offered by the ecosystem



3. Ecology society - 3D vision on the evolution of society

The central core of the eco-society is the green city because most people live in the city, and assessments have projected an increase of 1.4 billion people by 2030. Globally, people move to the cities in search of jobs, new opportunities for schooling and development, new ways of recreation, considerations which require the urban areas of the world to become centers of research and innovation to ensure an optimal co-existence between and ecosystem and man (UN, 2012).

Figure 2. The characteristics of an eco-society



In this context, green cities must develop by observing the following principles: i) creation of integrated public transport systems, promotion of cycling, promotion of walking, minimization of private transport use, etc. (TCPA, 2016); ii) creation of jobs close to housing areas, which leads to a reduced use of means of transport; iii) construction of houses, using biomaterials, with gardens, also used for recreational

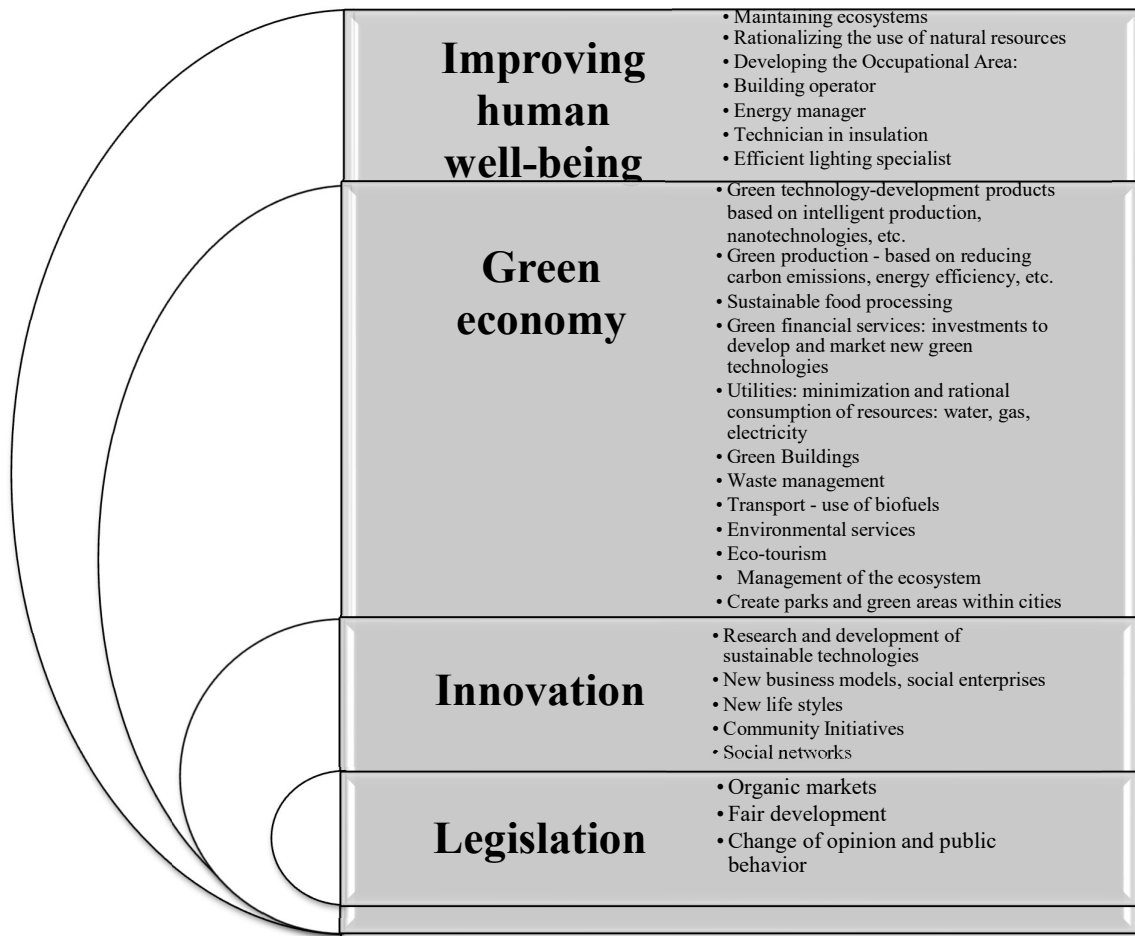
agriculture; iv) active and participatory community involvement; v) extension of green spaces and parks, which can reduce the stress and obesity of the inhabitants, promote sport and an active and healthy living regime; vi) a rational use of electricity, an increase in the use of green energy technologies; vii) the efficiency of the water resources use; wastewater collection, treatment, and reuse; viii) reduction of air pollution, with its primary effect both on the health of the inhabitants and on the environment; ix) noise reduction, etc.

4. Green economy - the future of the modern economy

The natural resources overuse prevents the sustainable development of the modern world economy. Though, the implementation of new production technologies streamlining the consumption of natural resources, based on the development and sustainable technical progress, the promotion and use of the innovation results, which is a basic condition for sustainable development, can lead to the reduction of the environmental impact of the world economies and to the creation of a guiding and advancing potential of the economies towards an environmentally sustainable future (Bailey I. & Caprotti F., 2014; Bretschger L., 2015). In this context, the green economy aims at outlining new definitions of the economic progress (CBD, 2014): i) by implementing certain indicators which reflect the individual welfare and prosperity, the economic resilience of the economic entities, as well as by highlighting the new business opportunities which contribute significantly to economic growth; ii) the reform of the financial institutions can lead to an improvement of the investment environment for the development of the sector of small and medium economic, ecological entities; (iii) the greening of large industrial sectors which consume natural resources and generate large quantities of waste; (iv) increasing the investment in human resources through education and skill training, to reduce poverty, social inequalities and social exclusion; v) managing natural systems leads to sustainable and equitable benefits both in the short term and mainly in the medium and long terms.

In the context of the transition to the green economy, the economic entities must adapt their work and reformulate their strategies in line with environmental policies, as follows (HMG, 2011): i) continuous ecological growth: there will be an increase in the green sectors, which will contribute significantly to the development of the green production techniques and technologies; ii) maximization of energy efficiency and resource use, which leads to the minimization of the production costs and to an increased competitiveness; iii) increased resilience - by including the risks in relation to energy security and other natural resources, and the environmental impact and climate change into the long-term business strategies; iv) adaptability to change: by including the variations of the natural resource cost into the business plans; v) consumer advice: the economic entity can influence the consumer's choices and promote organic products; vi) innovation: it becomes a basic component of the long-term and medium-term strategy of an economic entity, because it has to implement new technologies and to renovate the current ones in order to contribute to: the reduction of carbon emissions, the increase of the efficiency in case of the natural resources use, the minimization of the waste quantities and the cost minimization of the purchase, implementation and use of the green technologies; vii) infrastructure improvement can be achieved by combining the efforts of both governments and economic entities to support the green economy.

Figure 3. Features of the green economy



(Source: Karen Chapple, *Defining the Green Economy: A Primer on Green Economic Development*, Berkeley, 2008)

To integrate and use the new information provided by the green economy within the accounting system of an economic entity, several indicators, parameters, green accounting standards, and an account plan adapted to the requirements of the green economy must be created. That will contribute to a better report drawing from an economic point of view and, hence, to identify a way to highlight the environmental costs within the total cost of the production. Therefore a simultaneous development of operational measures concerning the green economic growth is characterized by a flexible approach that balances the cost-benefit report (ICC, 2011), is required. The green economy also relies on the development of a green industry that requires a sustainable development of industries which provide environmental goods and services within a diverse economic sector, atypical for the classical sector constraints, but which includes both the production of goods and specialized services (UNIDO, 2011). The economic entities producing goods specific to the green economy require entities that manufacture, install and qualify personnel for the use of renewable energy production equipment, non-polluting technology entities, and entities working in the waste collection, treatment, management and recycling, and also entities working in the wastewater collection, treatment, and reuse. There are also economic entities that provide consulting services intending to address the environmental, energy and water management issues.

The transition of the modern industries to green industries by using industrial greening becomes a long-term determinant for sustainable development and for increasing the competitiveness of economic entities acceding to this process (Ionescu C.A., 2017). As the cost of the non-renewable resources is an important part of the manufacturing cost of the goods, to create a competitive advantage, the economic entity acceding to the greening process is related to the efficient and rational use of resources. In this context, the industrial greening can be a factor in reducing poverty, but also in social exclusion, because it seeks to increase food, energy, health, and national security, and to create new jobs (UNIDO, 2011).

5. The relationship between the ecosystem, the eco-society, and the green economy - a decision-maker in setting environmental policies

All human activity shows not only negative, but also long-term positive effects as well for the environment, and the present society seeks to monitor and quantify the negative effects on one hand, and to highlight ways, mechanisms, technologies and evolutionary perspective regarding minimizing environmental effects on the other. Thus, in a cohabitation based on the relationship between the interdependence between man, the ecosystem, the eco-society, and the green economy, it is proposed to effectively and effectively monitor the effects of human activity on the environment and to identify means to minimize them to ensure future generations a clean environment, with a prosperous and harmonious green economic development.

The globalization and expansion of global economic entities, based on a production made for irrational consumption, and the use of non-renewable natural resources has led to significant changes and disturbances of the climate in natural ecosystems through the effects of pollution resulting from production processes, and it includes significant effects on human health. Thus, in recent years there has been a great research, innovation, and application movement to create and use a green economy, which requires a change of mentality, both individually and uniformly at a societal level, through awareness of the effects of human activities on the environment and identifying ways to protect it against the pollution. At the same time, there is a need for a structural change of the current economic entities to reduce pollution by implementing green production technologies, rationalizing the consumption of non-renewable natural resources and by establishing a meaningful bond between the human needs and the production, which can be recycled, renewed, reused or turned into new raw materials. At the same time, the importance of building eco-societies based on knowledge, multi-disciplinary education of the population, energy efficiency and use of biofuels, pollution reduction, and air purification, increasing recycling rates, increasing the efficiency of the wastewater circuit, and last but not least the rational use of natural resources.

The interdependent and causality relationship between human activity and the ecosystem, Eco-society, and the green economy aims to be quantified, introduced and recognized in the accounts of economic entities through monetary valuation effects on the environment through the potential use of alternative methods of production, increasing the use of renewable energy resources, minimizing the use of non-renewable natural resources, increasing the use of substitutes for natural resources, efficiency of resources used to rebuild or strengthen ecosystems and, implicitly, the environment. In this context, it is necessary: i) the coherent organization of environmental information carried out from a spatial perspective, which provides a correct picture of the link between people, the economic activity, the human activity, and the environment; ii) the use of a common set of concepts, terminologies, classifications and assessments leads to the creation of an integrated data-processing platform for research, testing and use of information; iii) to make a connection between economic activity and the environment that will allow assessment (the contribution of ecosystem services to economic

activity, the production, and consumption, the attribution of ecosystems consolidation and development on economic entities). To achieve an effective quantification of the effects of human and economic activities on the environment, we have to consider: the quantities of goods and services generated by the ecosystem, detailed in each sub-assembly; the carbon emissions amount; the recycling degree; the water pollution degree; the reuse of wastewater degree; the noise pollution; the energy efficiency degree; the transport efficiency degree; the use of biofuels degree (Owasu, P.A., 2016).

6. Conclusions

The human life, economic activities, and future generations are all dependent on consolidating, and the preservation of the environment, to ensure a minimum of resources to posterity, and the perpetuation of life on Earth. Thus, man is directly responsible for the effects and changes made to the environment, just as he is for ensuring the future.

All these considerations, based on the creation of an Eco-company and hence a green economy, based on rational use of natural resources, the development, support and supporting research to use new, clean technologies and techniques, increasing energy efficiency, using mainly Biofuels, rationalizing consumption and minimizing waste, increasing recycling, developing goods and products tailored to the needs of the consumer, creating goods that can be fully recycled, can be refurbished or reused, convert recycled materials into primary or secondary raw materials and develop markets to commercialize them, the multi-disciplinary education of the population, the efficiency of reuse of wastewater, the extension, and consolidation of green spaces, the construction of green buildings, etc., is reinforces a vision and a new point of view on the economy, which involves transforming the current economy based on consumption and production of non-renewable natural resources into a green economy that has as its main goal the harmonious cohabitation between man and nature as well as the effective development and welfare-friendly needed human development, an evolution defined by a mobilizing impact on poverty eradication, the avoidance of discrimination and the increase in health and education of the population.

Bibliography

- [1] Bailey, I., & Caprotti, F. (2014). The green economy: functional domains and theoretical directions of enquiry. *Environment and Planning A*, 46(8), 1797-1813.
- [2] Bretschger, L. (2015), *Greening Economy, Graying Society*, CER-ETH Press, Zurich,
- [3] Caribbean Development Bank, (2014) *A New Paradigm for Caribbean Development: Transitioning to a Green Economy*.
- [4] European Union (2010), *Bunurile și serviciile ecosistemelor*, available at: http://ec.europa.eu/environment/pubs/pdf/factsheets/Ecosystems%20goods%20and%20Services/Ecosystem_RO.pdf.
- [5] *General's High-Level Panel on Global Sustainability, Overview*. New York. www.un.org/gsp/sites/default/files/attachments/GSPReportOverview_Letter%20size.pdf.
- [6] HM Government (2011), *Enabling the Transition to a Green Economy: Government and business working together*, available at: [www.ukgbc.org/sites/default/files/Enabling_the_transition_to_a_.](http://www.ukgbc.org/sites/default/files/Enabling_the_transition_to_a_.pdf)
- [7] *Green_Economy_Main_D.pdf*.

- [8] Hecht, Joy E. (2000), *Lessons Learned from Environmental Accounting: Findings from Nine Case Studies*. Washington, D.C.: IUCN – The World Conservation Union, vi + 42 pp. Available from: pdf format at www.iucn.org/places/usa.
- [9] ICC Commission on Environment and Energy (2011), *Ten conditions for a transition toward a “Green Economy”*, Document No. 213-18/7.
- [10] Ionescu, C. A. (2017), Integrating the Environmental Accounting on the Information System of the Economic Entities. *Hyperion Economic Journal*, 5(2), 42-48.
- [11] Philippidis, G., M’barek, R., Ferrari, E. (2016), *Drivers of the European Bioeconomy in Transition (BioEconomy2030) an exploratory, model-based assessment*, Joint Research Centre.
- [12] Molly Scott, C. (2009), *Green Economics. An Introduction to Theory, Policy and Practice*, Ed. Earthscan, London.
- [13] Owusu, P. A., & Asumadu-Sarkodie, S. (2016). A review of renewable energy sources, sustainability issues and climate change mitigation. *Cogent Engineering*, 3(1), 1167990.
- [14] Town and Country Planning Association (2016), *Garden city principles*, available: www.tcpa.org.uk.
- [15] UNEP (2012), *Green Economy in Action: Articles and Excerpts that Illustrate Green Economy and Sustainable Development Efforts*.
- [16] UNEP (2011), *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, www.unep.org/greeneconomy.
- [17] United Nations (2012), *Resilient people, resilient planet: A future worth choosing*, United Nations Secretary-.
- [18] UNIDO (2011), *Green industry: Policies for supporting green industry*, Vienna, available. at www.unido.org/fileadmin/user_media/Services/Green_Industry/web_policies_green_industry.pdf.
- [19] United Nations (2014), *System of Environmental-Economic Accounting 2012—Experimental Ecosystem Accounting*, New York.