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Priorities of Building the Blue Economy in the European Union and Worldwide

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Abstract: The development of the humankind needs viable models. Past industrial models, being high consumers of multiple energy consuming and polluting materials, must be considered as outdated and urgently replaced. The current stage, according to which the humankind has plundered the Planet of viable resources, has long exceeded the capacity of self-regeneration of resources and filled it with waste, since it is deeply detrimental, must be urgently eliminated from productive practice. The vision, involvement and strategy in terms of building the blue economy must be accepted as the only way for the progress and existence of future human civilisation. The blue economy must be considered as the integrative vision that proposes the generation at the level of the whole society of the models taken from the natural cycle. As a result, only cascading, non-polluting production models should be promoted in the future, with the in-kind absorption of by-products released from the production process, thus preserving the possibilities of the natural environment. Undoubtedly, the European Union is at the vanguard of the competition to generate robust bio-economic strategies for the future. It must be acknowledged that there is a need for an intense European effort in promoting, implementing bio-economic action plans in an extended format, imposing constructive links with all states worldwide. Blue strategies for future development must not consider borders.

Keywords: blue economy; sustainability; enduring development; natural resources; competitive market; ecosystem flows; bio-economic strategy; standards; ecosystems; companies management

1. Introduction

Multiple phrases have been used, one after another, in an attempt to explain the need for development in harmony with the possibilities of nature and to raise awareness of the limits of this growth. Thus, Lester R. Brown promoted in 1974 the concept of sustainable development, the requirements of sustainable economy, green or gray growth. Sustainable development was seen as the model according to which economic growth was possible in the future only within the available natural resources, without exceeding the already existing possibilities. Disturbances or rhythm declines must be eliminated in order to provide natural resources with the possibility to self-regenerate for cyclical, reasonable and rational use in tomorrow's society. The phrase *sustainability* must be accepted as a broad vision and working model within a system of systems, eliminating the concept of waste, the involvement of energy and essential resources being possible only according to the model existing in nature (Gunter, 2010, p. Xxxi)

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Sustainable growth, a concept deriving from the vision, came in support of the idea of finding the possibilities (limits) to which nature allows to increase the consumption of resources, in order to ensure chances of recovery in a natural way and to offer possibilities of consumption of future generations. After all, the negative conclusions from the development spectrum must be countered by concrete positive measures of humanity, directed towards its own survival (Vasile, 2014, pp. 142-168).

2. The Need for Balance of the Development

It is commonly accepted that in the field of living standards and civilisation, something that is better can quickly become the enemy of what is good. The consumption of resources has increased alarmingly, from the fierce competition of humankind for deriving benefits. Consumer demands must be added to the demands arising from the dizzying population growth, the desire to optimize the comfort of a low social stratum, and an ever-increasing range of subjective and irrational reasons. In reality, humankind has entered a spiral of unfounded competition, with a destructive purpose, an effort aimed at an imminent disaster of today's civilisation. Society is overwhelmed by destructive pollutant emissions and marked by the impossibility of conceiving future development within reasonable parameters.

The pursuit of energy was the initial requirement of development and the cause of the disaster, as a result of exceeding the limits of human development, as presented by the Club of Rome. The *Limits to Growth* report illustrated the situation of humankind in a vicious circle, fuelled by population growth, chaotic industrial development, environmental degradation, and the collapse of traditional ethical standards (Worldwatch Institute State of the World, 2008, pp. 12-26). In the US, in 2009, \$ 50 billion was spent on the transportation of household waste alone and \$ 1 trillion on the transportation of waste from the entire economic system. In the economic life and in the field of consumption, there are many cases of using only a part of the natural resources, most of the element provided by the natural environment being wasted. Thus, only beans are used in the case of coffee (less than 5%) of the whole plant, the remaining part being unused waste, for sugar cane it is used only the sugar content of the stem (only 17%) and in the manufacture of paper the consume is limited to cellulose (less than 30%), most of the body of the tree being considered as waste and incinerated. And the examples can go on [Gunter, 2010, pp. Xxx-6]. Therefore, in the 11th hour of humankind, the limits of human development being clearly exceeded, the situation being fuelled also by global warming, the *Blue Economy* was generated by convergent scientific efforts, with the support of visionary ideas, taken strictly from nature. The theory has the values of an innovative concept, based on multiple practical applications, able to radically change the unfavourable energy paradigm of human civilisation and destabilising the world economy. There are two courses of action: (1) human consumption must occur strictly at the rate at which natural balance allows it, and (2) degradation and pollution must be eliminated in the processes of transformation and consumption.

At the end of 2008, the world economy entered a recession, due to the desire of bankers and government decision-makers to increase profits, accumulating multiple fixed assets and huge debts, stopping economic growth and producing the red (indebtedness) economy. More than 50 million jobs were lost in developing countries, with the unemployment rate at 50% among young people. Tensions over development opportunities have been generated by insufficient resources and the presence of waste that humanity can no longer hide. As a first model, the green economy intervened by asking companies to increase investment, consumers to pay more for maintaining the standard of living, both while maintaining environmental conditions at in a relative balance. In this idea, in the second way, the polymers derived from oil tried to be replaced with elements of natural source (amino acids, starch,

sugar, cellulose, etc.), a procedure inspired by natural sources. Both models were a failure. It was the right time for a realistic analysis of the stage reached and the possibilities for the future.

Under these conditions, the blue economy was shaped as an urgent need to change the world, summing up economic systems inspired by the current natural cycle, ensuring a viable model for restructuring world economies and building a society that operated on different bases of production and consumption. Thus, the result is that the whole cycle of production, consumption, post-consumption and regeneration will be sustainable (Gunter, 2010, pp. Xxxiii-9).

In the case under analysis, Gunter Pauli estimates that out of about 3,000 cases inspired by nature, only 340 technologies have been kept in attention. Ultimately, the attention was focused on only 100 innovations that remained to be studied. The list of 100 innovations prioritises the ability of ecosystems to grow steadily towards high efficiency levels. In practical terms, the proposals made are a unique type of pillars of resistance of the blue economy. Given that the involvement of millions of international actors is subject to the hegemonic desires of some leaders, the chances of the progress of the blue economy are low (Gunter, 2010, pp. Xxxi- xxxv].

3. Perspectives of Competitive Market

Most of the current companies operate based on the scholastic management, promoted by rigidity and mercantilist thinking.

The management principles considered at the level of industrial standards are quite harsh, which make the competition coming from the blue economy difficult.

The main effort, marked by strategic competence requires that all economic initiatives go through complex analyses on profitability, comprise strategies, effort plans, parameters of success validated in productive practice. Changes can only be accepted in an innovative way, but even then, there must be guarantees on deriving benefits. No one wants to cause major risks, being allowed only low margins of insecurity on the benefits, but with definite guarantees on the positive results of the final process (Gunter, 2010, pp. 59-61).

The stability of the supply chain is a consequence of the complex situation already existing on the competitive market, which is strictly controlled by each corporation. New blue technologies would require reshaping of the supply chain, imposing the synchronised work from all structures, re-establishing new geopolitical contacts and working in complex teams.

Outsourcing facilitates the subcontracting the production to third parties, in order to ensure the focus of the company's own efforts on the direction of maximum interest and with a significant profit.

The major impact of cash flows on the production process requires selecting the products with the fastest movement (absorption) on the competitive market, even with a low profit, in contrast to unsold products, products in stock, which are stationary and block deposits (Vasile, 2014, pp. 153-165).

Elimination involves the production of large quantities of the same product, at a very low cost, considered as the main product, which ensures a constant flow of money, discouraging change (Gunter, 2010, pp. 61-69).

From the above-mentioned arguments, industrial systems are extremely resistant to essential changes, with global standards that reduce costs. The unifying versions lead to failures (soil depletion, disease infestations, zonal pollution, etc.).

Given that ecosystems are networks of networks in natural reality, the principles of management must be established within each network. Nutrients and energy are found in an endless cascade, the laws of physics being applied without exception. The ecosystems of the blue economy target what exists locally, using the resources available tactically. In natural ecosystems there are no toxins or surplus elements, a perfect, self-regulating balance being ensured. The standards of industrial economies are pointless. Typical of the blue economy is the phenomenon of abundance – energy, food, jobs and income. In addition, as biodiversity is based on the existence of an extensive but very different range, each local project exploits a niche sector that does not resemble another. If in industrial forms, the human being adopts the nature of their principles and interests, in the blue economy, they adapt to nature.

4. Nature-Inspired Innovations

They are excellent models, which need to be notified, analysed in detail and implemented in future economic practice. Here are some impactful examples.

4.1. The Induction of Flows Typical to Ecosystems

Only some of the most important ones are illustrative.

Regeneration of the rainforest as potential opportunities to ensure permanent flows of water, food, carbon absorption and oxygen supply, production and export of goods, establishment and maintenance of local security and an accepted standard of living. In particular, it will be implemented in multiple areas, in accordance with local conditions (Gunter, 2010, p. 281). On particular geographical areas, the efforts will be marked by the necessary specificity (Vasile, 2014, pp. 191-243).

Sustainable agriculture and cascade food processing require that food, biofuels and nutrients are produced and processed primarily locally. It is found in the use of quality soil, naturally allowed technologies, clean water and non-genetically modified varieties or breeds. In the end, the natural energy support for the human being (human food) is directed (sent to export) to the adjacent social agglomerations (Gunter, 2010, p. 281). Obviously, returning the rural area to its calling, that of food producer, is the sine qua non of human existence in the world of the future. The ineffective state of affairs must be eliminated immediately from these moments in which the import of food in the rural area is made from the city, more precisely from the global feeding system, a system loaded with a lot of non-beneficial contents (Vasile, 2014, pp. 114-118].



Figure 1. Generic Vision of the Blue Economy

Source: According to Review on the 2012 European Bioeconomy Strategy, p. 1

We will briefly mention other future optimisation flows. *Transformation of coffee pulp into proteins* to support the production of mushrooms, biofuels, crops for export and local food (Gunter, 2010, p. 281). Likewise, *the transformation of CO₂ into nutrients and biofuels* through the collection of carbon dioxide, the production of food, medicine, biofuel, bioplastic, etc. (Worldwatch Institute State of the World, 2009, pp. 28-44). *Construction materials for the fast, cheap building of the typical houses of the area* can be ensured by recycling paper and wood fibres of different types in renewable building material, building emergency shelters etc. *The ecological treatment of wastewater*, possible through the use of mushrooms, as well as the production of biogas and fertilisers is considered. *The use of non-recyclable glass as a building material* supports the reaching of multiple purposes, infrastructure and agricultural products. The most important sector of blue growth in the future is given by the huge area with unknown potential, represented by the aquatic space (seas and oceans). Details in figure 1.

By the same token, specific fluxes can be activated regarding food-type flame retardants, forest-like clean air circuits, protection against ultraviolet radiation, plastics made from starch from food waste, transformation of wood into food, biofuel typical of the prairie, homes from bamboo, silk for surface soil times and systems for brewing (Gunter, 2010, pp. 281-282).

4.2. Induction of Absolutely Innovative Flows

The typology can be particularly wide-ranging in this case as well. For reasons of space, only a few of the representative flows will be exemplified:

- making electronics, medical devices, games and toys, shoes or clothes without the use of batteries, using the principles of warm-blooded animals;
- through bacteria, processing and obtaining of rare metals, in conditions of high energy efficiency, residues processing and efficient mining;
- using the vortex caused by gravity to replace aggressive chemicals in the separation processes to produce drinking water, irrigation, mixing systems or as substitutes for bactericides;
- using the biological principles specific to plants for making vaccines, medicines and for food preservation;
- using the principles of movement of some sand animals for the release of lubricants and bearings in the processes of mechanical friction in the composition of machinery, machines, household applications and mechanical devices;
- using the construction principles of termites for the production of air conditioning without appliances, real estate development, building of social-cultural facilities, new industrial parks;
- producing food, beverages, medicines, cosmetics, all without aluminium packaging, following the model of the desert-specific burrow frog;
- using the biological potential of the termites for the production of paper, consumer goods and insulation materials, without chemicals;
- making solvent-free solutions, multiple applications in chemistry, by using red algae;
- using the mosquito model to produce needles for painless injections, necessary for the care of diabetic patients, extensive vaccination and for veterinary use (Gunter, 2010, pp. 281-284).

The multitude of examples provided by nature, which must represent innovative flows for the human being, is infinite. There is the fundamental condition for the situation under analysis – the human being must be aware of the indisputable benefits of each perfect model and use them quickly, extensively and irreversibly for the evolution of their own civilisation.

5. Blue Economy Concerns on the European Union Agenda

The European Union is unquestionably on a meritorious place in terms of research and implementation of biological models. Therefore, the European organisation is indisputably placed in the blue economic practice on the axis of using and developing natural models. Special efforts are being made to shift from polluting industrial technologies to non-polluting technologies inspired by nature (Vasile, 2014, pp. 140-168). That specific road, which must span several generations, is long, expensive and must be a one-way road – using and restoring natural processes in the bioeconomic technologies of the future. Switching the development paradigm is possible only in high-tech states with surplus cash flows. But the most important thing is the firm political decision to move on to future development, following only natural patterns. Details in figure 1.



Figure 2. Adopting Bioeconomic Development strategies in the European Union States

Source: Review on the 2012 European Bioeconomy Strategy, p. 17

European states have different attitudes towards the needs of the blue economy.

France developed (2017) its own bioeconomic strategy, having as a priority effort the production of bioenergy, the establishment of the circular economy, clusters and the creation of organic solvents. *Spain* formalised the bioeconomic strategy (2015), designed to support the production and use of biological resources. The sectors concerned are provided by human food, agriculture, forest areas, all being conditioned by the available water resource. Bio-industrial production and bio-energy obtained from biomass are also included. *Italy* adopted the bio-economic strategy (2016), the Italian vision including primary productions (agriculture, forestry, fish farming, food), as well as chemical biotechnologies and bio-energy industries. *Finland* adopted its own bio-economic strategy relatively early (2014), focusing on promoting basic renewable resources in the fields of forestry, soil, culture areas, sea areas and fresh water. *Germany*, for the first time in Europe, officially launched the national research and bio-economic strategy (2011) for multiple research and development in the field of food security, healthy nutrition, bio-industrial processes and bio-energy (European Commission, 2017, pp. 80-82).

Romania, although it launched praiseworthy initiatives and held multiple workshops, scientific events and sectoral documents, could not adopt a national bio-economic strategy in the true sense. The attempts to generate the strategy were unsuccessful, with the limited promotion of sectoral reports (visions on reducing carbon emissions, agricultural-food innovations, etc.), as well as projects on bio-economic development in Romania for the time frame 2016-2030, to reach the priorities of bio-economic development. The main reasons for the unfavourable state of affairs are provided by the lack of political

will, insufficient financial and bio-economic research resources, the development of efforts contrary to the goals of the blue economy and the causing of negative effects of great impact. Future developments in the Romanian space may be marked by systemic dysfunctions, alteration of the natural environment, impoverishment and excessive deterioration of food security.

6. Notable Concerns outside the European Union

We reiterate the truth according to which the success gained in the spectrum of the blue economy belongs primarily to the economically developed states, possessors of massive financing and beneficiaries of innovative technologies, located on the meridians of the world.

Japan developed early (2010) its own plan to promote the use of biomass, a document with strategic values in the bio-economic field, intended for the production of industrial uses, making a priority from biomass. The *USA* promoted the National Bioeconomy Blueprint (2012), the effort being focused on scientific life (biomedicine) and major agriculture fields. *Malaysia* launched the Bioeconomy Transformation Program (2013) promoted holistic developments in the field of bioeconomy and the implementation of biotechnologies. *South Africa* wants to improve innovative capacity, through education, research and engineering, which have taken place along valuable bioeconomic chains. *Norway* has focused its efforts on its own bioeconomic strategy (2016) through an integrated bioeconomic design, ensuring a circular economy and efficient natural resources. Even earlier than that, the Nordic Council of Ministers (2014) drafted the visionary document on future opportunities in the area of interest, unitarily integrating the efforts of multiple states in the area (Denmark, Iceland, Finland, Norway, Sweden, Faroe Islands, and Greenland).

We can also mention states with significant developments in bioeconomic policies promoted in specific sectors, such as the United Kingdom, Austria, the Netherlands, Lithuania, Portugal, Belgium, etc. (European Commission, 2017, pp. 81-82).

Conclusions

After billions of years of species evolution, only the human species wants to control the multiple dynamic balance of nature. The approach is thought by the human being as applicable only by imposing physical measures, without self-corrective effort. In the industrial age, the fire, fossil fuels and nuclear energy were constrained. Unjustified energy consumption and terrible waste have led to the shift of the state of the natural environment to the danger zone, humanity being at a vital crossroads regarding the desired existence in the future. The requirement for the survival of Humanity requires that the human being lives in harmony with the earth and plant and animal species. The opposite and unwanted attitude, the one regarding the maintenance of the constructive-destructive behaviour of the human species, will inexorably lead to the self-elimination of the human being from the life of the Planet and to the end of Humanity.

There is an immediate need for a major paradigm shift. Currently, the MBA (Master in Business Administration) diploma provides the holder with extensive selection opportunities as managers or leaders in the industrial business. The justification stems from the fact that they have the ability to analyse the competitive market, transactions and interactions, with owners being able to reduce costs, maximise cash flow, increase the company's market share and optimise the supply chain.

For the Blue Economy, MBA holders are unable to ensure the smooth operation of a business in the spirit of natural ecosystems. For the survival of the planet, the managers of the future must recognise and respect exactly the laws of nature, to apply only action models of the natural environment, making room for the mastery of nature to adapt. Ecosystems for creating a sustainable economy will be replicated, respecting the efficiency of nature to ensure inexhaustible resources in the future. Cascade production models will generate into network, multiple cash flows being promoted.

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