

Investigation of the degree of maturity of bio-enterprises in relation to the global sustainable development goals

Valentina Alexieva-Nikolova, Katina Valeva

Business Faculty – University of Food Technology -Plovdiv, Bulgaria, _valentina_nikolova@abv.bg¹
Business Faculty – University of Food Technology -Plovdiv, Bulgaria, tomika_888@yahoo.com²

Abstract: Growing environmental problems and the uneven distribution of wealth around the world raised questions more than forty years ago about how to achieve sustainability. The United Nations Commission on the Environment and Development (WCED), formed in the autumn of 1983 and chaired by Gru Harlem Bruntland, draws accurate and concrete conclusions using full information from all over the world on the state of the planet and develops a report called "Our Common Future". Along with all the conclusions and recommendations, the Bruntland report introduces the concept of "sustainable development" which reads: Sustainable is a development that achieves the vital needs of the current generation without being deprived of it (ie without The leading aspect in this definition is the idea of reconciling the satisfaction of human needs with the limited resources, as well as the equality between the present and the future generations. The report demonstrates the need for a radical change in human activity to date and the need to establish sustainable development on a global scale. The conference in Rio de Janeiro (Brazil) in 1992 played a crucial role in affirming the concept of sustainable development in modern society. combining the harmonious interaction between economic prosperity, social justice and a preserved environment. The purpose of this report is to present the results of a study on the degree of maturity of management in bio-sector enterprises to adopt global sustainable development goals and link them to their business practices. The results of the present study confirm the thesis that the modification of the current socio-economic model of development there is no alternative. The main non-reproducible energy and raw materials sources are about to run out in the foreseeable future.

Keywords: BIOECONOMICS, BIO-ENTERPRISES, SUSTAINABLE DEVELOPMENT

1. Introduction

The conference in Rio de Janeiro (Brazil) in 1992 played a crucial role in affirming the concept of sustainable development in modern society [1]. combining the harmonious interaction between economic prosperity, social justice and a preserved environment [2]. The concept of sustainable development has been expanded as "a process of change in which the exploitation of resources, investment orientation, technology orientation and institutional changes are in harmony with each other and increase the current and future potential to meet human needs and aspirations"[3]. This wording in practice links the environmental aspect with the economic and social side of the problem of sustainable development of society [4]. The most important document from the meeting is the previous Program for Global Sustainable Development called "Agenda 21" ("Agenda 21" - a document of 900 pages with 4 main sections) [5]. The program is (contains) a global action plan that outlines priorities for sustainable development in the XXI century. The UN General Assembly is taking special measures to turn Agenda 21 into a national policy and program for solving the world's environmental problems [6].

In Fig. 1 presents some important historical moments in the long road to the recognition of a common, international institutional framework for sustainable development.



Fig. 1. Historical moments in the institutional framework for sustainable development

As early as the early 1990s, a broad international consensus was formed on a network of principles and goals for sustainable development, known as the paradigm for the effectiveness of development aid, set out in the Millennium Development Program. Historically, two periods are formed for the implementation of the Development Goals in 15-year time ranges (see Table 1). In the first period, in 2000, at the Millennium Summit, the Millennium Declaration was signed, which launched the Millennium Development Goals in the period 2000-2015.

	SDGs (2000 – 2015)	SDGs (2015-2030)
Goals	8	17
Tasks	18	169
Indicators	48	230

Source: UN

Table 1. Comparison of the Sustainable Development Goals (2000-2015) and (2015-2030)

Two years before this deadline, after intensified negotiations in order to set global development goals for the new period (2015-2030), the international community is preparing (with the widest possible representation of all stakeholders) a new, more ambitious a package of goals for the next 15 years, taking into account the experience gained and the state of the world [7]. The new Sustainable Development Goals are natural successors to the Millennium Development Goals (MDGs). They were adopted in August 2015 in New York, during the 70th UN General Assembly. At the event, the world leaders of 193 countries (193 UN member states, two observer countries and 11 other countries) agreed to achieve a better future for all and adopted a new global framework for sustainable development, the "2030 Agenda", called "Let's Transform the World" [8], [9]. It reflects the first international consensus reached that peace, security, justice and social inclusion for all should not be just separate goals, but mutually reinforcing" [10], [11]. The program is considered to be crucial for sustainable development worldwide. It sets 17 Global Goals with 169 specific sub-goals, balancing the integration of the three aspects of the concept of sustainable development - economic, social and environmental and outlining the path for sustainable development of the Planet for the period up to 2030" [12], [13]. They are universal, inclusive and relevant. for all countries in the world" [14], [15], [16].

2. Exploration

The European Union, together with its Member States, is playing a leading role in implementing the 2030 Agenda and achieving the Sustainable Development Goals. Although in the period up to 2020, Europe can point to good results on each of the set targets, it is planning additional targeted actions to meet each of the 17 global targets by 2030, and is preparing to achieve more long-term goals in the horizon until 2050 [17].

In this regard, on 20.01.2020 with Decision № 33 of the Council of Ministers the National Development Program "Bulgaria 2030" was approved, which covers the 17 global goals for sustainable development. This is the latest framework strategic document of the highest order in the hierarchy of national programming documents, determining the vision and general objectives of development policies in all sectors of government, including their territorial dimensions [18]. According to the document, the vision for Bulgaria is to become a country with a high standard of living and a competitive, low-carbon economy by 2030. The document provides predictability of the environment for generating innovative ideas and attraction for investment and human capital.

The Bulgaria 2030 Program defines three strategic development goals (see Fig 2).



Fig. 2. Strategic goals in the Bulgaria 30 program

The guidelines for the implementation of the set three goals are grouped in five strategic areas (axes) of development, as 13 national priorities are raised, presented in Fig.3.

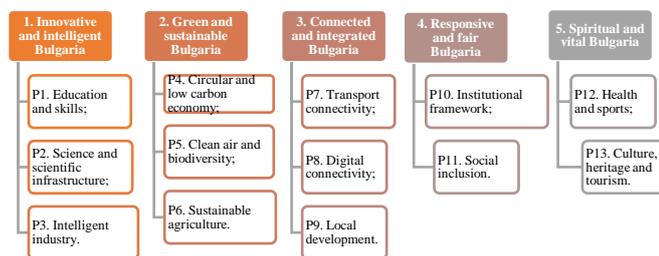


Fig. 3. Strategic areas and priority areas in "Bulgaria 2030"

The bio-enterprise sector is of strategic importance for achieving the goals of sustainable development. Data from the European Commission's research center show that the turnover of bio-sector enterprises by 2019 in the EU as a whole is over 2.3 trillion euros. The workforce employed in various sectors (mainly the agricultural and food sectors) accounts for 8.2% of the EU-28 workforce, which is over 18 million people. The industry estimates that by 2030, more than one million new jobs can be created in the bio-industry. A strong and fast-growing ecosystem of start-ups will play a leading role in realizing this potential. These indicators place the bioeconomy among the main elements for the successful realization of global goals.

Building a more sustainable bioeconomy contributes to building:

- a future that is carbon neutral, in line with the climate goals of the Paris Agreement;
- reduction of greenhouse gas emissions in the European energy sector. Bioenergy, the largest renewable energy source in the EU, is expected to remain a key component of the energy mix until 2030 and to contribute to meeting the EU's renewable energy targets.
- modernizing and strengthening the EU's industrial base by creating new value chains, as well as greener and more cost-effective industrial processes.

- Bioeconomy is the renewable segment of the circular economy. It can turn bio-waste and residues into valuable resources and create innovations and incentives to help producers and consumers reduce food waste by 50% by 2030.
- contributes to achieving neutrality with regard to land degradation and to realizing by 2020 the ambition to restore at least 15% of degraded ecosystems.

A survey of managers of bio-sector enterprises in Bulgaria shows the degree of knowledge and perception of the goals of sustainable development and how they intend to engage companies to achieve them.

- Engagement on the SDGs (Fig 4).

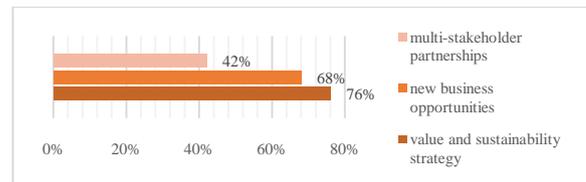


Fig. 4. Perception by business

The results show that:

- 76% believe, that it is important to address the SDGs as a part of their company's corporate values and sustainability strategy.
- 68% say that the SDGs offer new business opportunities=
- 42% report that the SDGs are important to improve multi-stakeholder partnerships.

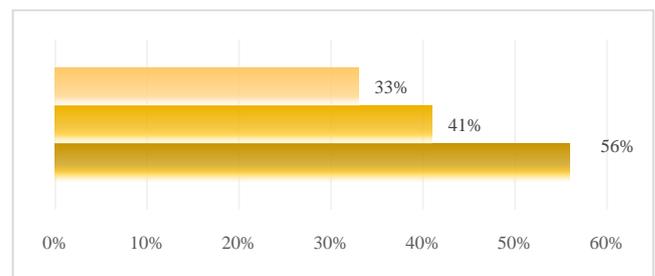


Fig. 5 Challenges for companies

Main Challenges that companies face in engaging with SDGs (Fig. 5). The results show that:

- 56 % say that limited/low social awareness and stakeholder demand on the SDGs are the primary challenges that their company faces
- 41 % indicate that there is no clear approach or direction for how they should implement the SDGs
- 33% cite that a lack of commitment and policy from Government is also a key challenge.

- Actions the Bulgarian government can take to encourage businesses to integrate SDGs. (Fig. 6)

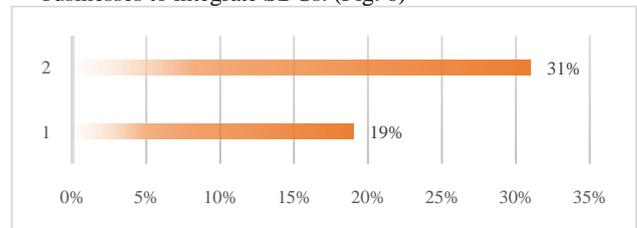


Fig. 6. The role of the state

The results show that:

- 19% suggest the development of a more supportive regulatory framework and policies that can guide businesses to integrate and implement the SDGs.
- 11% recommend greater support from Government in setting and achieving SDG goals.

An opportunity for more internal engagement. (Fig.7)

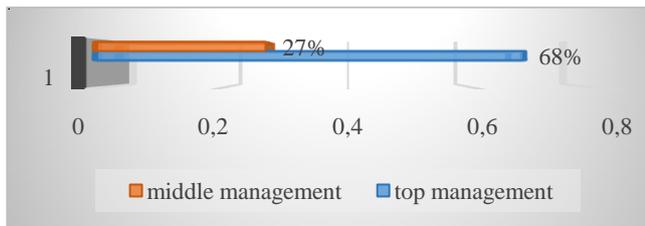


Fig. 7. Internal engagement at management levels

The results show that:

- 68% of top management report that the SDGs are well-known by top management
- 27 % of middle management believe the SDGs are well-known by middle management.

➤ Ranking of all SDGs based on priority areas for business to focus on. The results are summarized in fig. 8.



Fig. 8 Ranking of priority goals for business

Bio-enterprises have a crucial role to play in achieving each of the global goals and overcoming the challenges they pose to modern society:

- ❖ **Goal 1:** Eradicate poverty - Bio-enterprises can contribute to providing jobs for the poor. To this end, efforts need to be focused on the segments of the economy in which the largest numbers of the poor participate: micro and small enterprises.
- ❖ **Goal 2:** Zero hunger - can support local farmers by preferring foods produced in a sustainable way or participating in the fight against food loss.
- ❖ **Goal 3:** Good health and well-being - can educate people about the importance of good health and a healthy lifestyle and the right of people to receive quality health care.
- ❖ **Goal 4:** Quality education - in order to participate in solving this problem, bio-sector enterprises can invest in the development of material and methodological educational base.
- ❖ **Goal 5:** Gender equality - to invest in programs to introduce women to income-generating activities.
- ❖ **Goal 6:** Clean water and sewerage - through rational use of water resources, investment in research and development of water supply, promotion of hygiene.
- ❖ **Goal 7:** Affordable and clean energy - maintenance and protection of ecosystems for the use and further development of hydropower and bioenergy; encouraging the use of bicycles, public transport or walking to reduce carbon emissions.
- ❖ **Goal 8:** Decent work and economic growth - providing equal opportunities for people to find productive work, regardless of gender, income or socio-economic status.
- ❖ **Goal 9:** Industrialization, innovation and infrastructure - investments in transport, irrigation systems, energy supply, information and communication technologies.

They are needed to stimulate productivity and income growth, and this affects health and education.

- ❖ **Goal 10:** Reduce inequalities in countries - investment in transport, irrigation systems, energy supply, information and communication technologies is needed to stimulate productivity and income growth and improve health and education outcomes.
- ❖ **Goal 11:** Sustainable cities and towns - achieving universal access to adequate, safe and affordable housing and the renewal of slums.
- ❖ **Goal 12:** Responsible consumption and production - reducing waste production and seeking new solutions for the transition to sustainable consumption patterns by training people in this field.
- ❖ **Goal 13:** Combating climate change - innovation and long-term investment in energy efficiency and low-carbon development.
- ❖ **Goal 14:** Protection of marine ecosystems. Protecting the oceans, preventing the release of debris into the oceans, reducing the use of plastic products to the lowest possible level, organizing cleaning of coastal areas.
- ❖ **Goal 15:** Protection of terrestrial ecosystems - recycling, use of local sustainable foods, reduction of energy consumption through efficient heating and cooling systems.
- ❖ **Goal 16:** Peace, justice and strong institutions. Bio-business can raise awareness of violence and the importance of building a just society. It is necessary to promote social inclusion and respect for people of different backgrounds, ethnicities, religions, genders, sexual orientations and worldviews.
- ❖ **Goal 17:** Partnerships for Sustainable Development - work with governments, civil society, researchers and academics.

Bio-sector enterprises perceive the concept of sustainable development as a balance between the economic interests of business, the environment, employees, society and future generations. In this regard, their commitment to the concept is focused on the following areas:

- Products and packaging must be designed in such a way as to ensure their safety throughout their life cycle. It is necessary to increase the relative share of recyclable materials used in the production of products and packaging. In parallel, the energy used in the production process must be generated from renewable and environmentally friendly energy sources.
- Services to be organized and implemented in order to meet real human needs. They must be based on the principles of justice and equality.
- Waste and environmentally incompatible products must be reduced, destroyed or recycled.
- Chemical and physical substances, agents and conditions in the production and sale of products that pose a danger to human health must be eliminated. The products must not contain substances harmful or dangerous to human health or to the ecological balance.
- Achieving energy and resource efficiency.
- Workplaces and technological processes in enterprises must be designed in a way that minimizes or eliminates chemical, ergonomic, physical and other types of risk.
- The business organization should be oriented towards increasing the efficiency of the use of human capital.
- Safe, healthy and dignified working conditions must be provided in enterprises.
- Enterprise staff must be paid fairly for their work and supported through economic incentives, cultural diversity and social engagement.
- The long-term economic and financial stability of the production enterprises is ensured.

Conclusion

Sustainable development is “socially just and environmentally friendly”. Social justice is given priority criteria for the nature of the interaction between the four: ecology, economy, social sphere and institutional structure. This is new approach, compared to the prevailing understanding of the leading principle of environmental criteria, and the expression of this position in models for "eco-economy" and "natural capitalism".

In addition, on its nature and end results environmentally friendly development is social fair. The level of environmental friendliness is a key indicator for standard of living. On the other hand, the institutional dimension is integrated into “social justice” and "Environmental friendliness", because both are achievable only if they are created the relevant institutional structures and are adequately implemented regulatory mechanisms.

By itself, a market economy does not provide sustainability of development. In many cases, it leads to the exact opposite results - the rich get richer and the poor get poorer. Environmental protection environment is in conflict with the desire to optimize the corporate profit. But the contradiction between some of the principles of market economy and sustainable development is surmountable. Moreover, their mutual is possible complementarity so that, under appropriate conditions, market incentives are used to achieve sustainable development. Environmental standards are difficult but consistently imposed the world market, in investment policy, in interstate economic and political relations. The analyzes show that developed and even some developing countries, rethink the directions of their economic policy, the structure of their holdings, the ranking of their strategic interests. For It would be extremely important for Bulgaria to achieve a gradual and well-balanced change in the structure of the national economy. The current structure, inertially following the development of industries and productions with high resource and energy consumption, low usability of raw materials, the heavy environmental heritage and continuing high pollution rates, technological backwardness and relatively low competitiveness, etc., show that we already are delayed in implementing sustainable development mechanisms. The Bulgarian economy could not withstand serious prices shocks due to the current structure of the economy, characterized by high energy and raw material dependence on imports, nor to compensate these price differences with a sufficiently competitive market product.

The results of the present study confirm the thesis that the modification of the current socio-economic model of development there is no alternative. The main non-reproducible energy and raw materials sources are about to run out in the foreseeable future.

The study shows that the bio-sector in Bulgaria knows the global goals for sustainable development and is ready to meet the challenges that these goals pose to its development.

This report is funded from the National Science Program "Healthy Foods for a Strong Bioeconomy and Quality of Life" of the Ministry of Education and Science, approved by decision of the Council of Ministers №577 / 17.08.2018 , contract No 68 / NSP under Work Package 4.3 "Analysis and profile of the status and potential of the regional bioeconomy"

References:

- [1]. Gupta, Shr. (2012), Incentive-Based Approaches for Mitigating Greenhouse Gas Emissions: Issues and prospects for India, Working paper series, Julian Simon Centre for Policy Research, Liberty Institute, New Delhi, p.3.
- [2]. Sterner, Th. Policy instruments for a Sustainable Economy, in: Economic Policies for Sustainable development, Ed. By Thomas Sterner, Ch.1, p.12, The Netherlands: Kluwer Academic Publishers, 2014
- [3]. Wackernagel, M., Schulz, N., Galleias, L., Linares, A., Deumling, D., Martin, A., Jenkins, M., Kapos, V., Monfreda, C., Loh, J., Myers, N., Norgaard, R., and Randers, J., (2012). Academy of Sciences (PNAS), <http://www.eldis.org/static/DOC10649.htm>
- [4]. National Strategy in the Field of Energy (with Focus on Electric Power

- Engineering) BAS, Sofia, 2017.
- [5]. Meadows, D., Meadows, D. and Randers, J., (2014), Limits to Growth: The 30-Year Update, Chelsea Green Publishing Company
- [6]. Matthews, J., Munday, M., Roberts, A. & Williams, A. (2003). An Index of Sustainable Economic Welfare for Wales, the ERSC Centre for Business Relationships Accountability Sustainability and Society, Cardiff: Cardiff Business School, pp.3-4
- [7]. Mihova, T., Anguelov, K., (2018), Research on interactions among universities and high-technological enterprises at qualification of employees, IX National conference with international participation ELECTRONICA, Sofia
- [8]. Bioeconomy development in EU regions. Mapping of EU Member States' / regions' Research and Innovation plans & Strategies for Smart Specialisation (RIS3) on Bioeconomy. Final Report. February 2017. Framework Contract: 2014.CE.16.BAT Lot 2.
- [9]. Denmark as growth hub for a sustainable bioeconomy. Statement by the National Bioeconomy Panel. September 2014.
- [10]. European Commission. 2017. The role of waste-to-energy in the circular economy. Communication from The Commission to the European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions Brussels, 26.1.2017 COM (2017) 34 final
- [11]. European Fat Processors and Renderers Association (EFPRA) Home Page. <http://efpra.eu/> (accessed July 25, 2018)
- [12]. Eurostat 2019 a: Structural business statistics (SBS), <http://ec.europa.eu/eurostat/web/structuralbusiness-statistics/data/database> (19-07-15).
- [13]. Monastirioti, V and G. Petrakos (2009), Local Sustainable Development and Spatial Cohesion in Post – transition Balkans: in search in developmental model, GreeSE/GreeSE29
- [14]. Nikolova-Alexieva V., Valeva K., (2019), “Research on the development of bio entrepreneurship in Bulgaria economic-based entrepreneurship activity in the sectors of bioeconomy“ в XXIII rd International scientific conference; Knowledge in practice, Bansko, 13-15 December
- [15]. Nikolova-Alexieva V., Valeva K., (2019), Bioeconomics - a strategic sector in the circular economy, in 4TH International Scientific Conference – winter session - “Industry 4.0”, Mechanical Scientific and Technical Union - Industry 4.0, Borovets 11-14 December, 2019.
- [16]. Nikolova-Alexieva V., Valeva K.,(2019) Enhancing the competitiveness of bio-sector enterprises for stronger bio-economy“ , 4TH International Scientific Conference – winter session - “Industry 4.0”, Mechanical scientific and technical union - Industry 4.0, Borovets 11-14 December
- [17]. Peters, G. M.; Rowley, H. V.; Wiedemann, S.; Tucker, R.; Short, M. D.; Schulz, M. Red Meat Production in Australia: Life Cycle Assessment and Comparison with Overseas Studies. Environ. Sci.Technol. 2018,44 (4), 1327–1332.
- [18]. Nikolova-Alexieva V., Alexieva I., (2019), Analysis of the condition of Bulgarian bioeconomy and potential directions of its development, 22TH International scientific conference “The power of knowledge (11-13.10.2019), „Knowledge – International Journal Vol. 34,5 (doi:10.1088/issn.1757-899X) Kavala, Greece, pp. 1201-1209