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THE RELATIONSHIP ANALYSIS BETWEEN ENVIRONMENTAL PERFORMANCE AND ECONOMIC VALUE OF THE COMPANY

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Abstract. *The importance of environmental sustainability is becoming greater due to its contribution to greater value for customers and convergence of the circular economy and Industry 4.0, which can improve the efficiency of limited resource use. Based on the information from environmental accounting, managers can more effectively assess the economic impacts that corporate environmental performance generates on the company's operations. Environmental performance can be improved by developing new products and production processes in order to minimize the potential negative environmental impact. Many companies have introduced the practice of corporate self-regulation, which includes environmental management systems and reporting on the company's non-financial performance. The obtained results of the conducted empirical research could help managers make optimal decisions at the right time, and perform effective monitoring and rank of environmental and economic business indicators during the time.*

Key words: *Environmental Economics, Recycled waste, Gross Income, Food and Beverage Industry, Corporate Social Responsibility*

JEL Classification: D22, D46, Q51

1. INTRODUCTION

Strict environmental regulations and growing international concerns about global warming have influenced manufacturing companies to increasingly focus on reducing the

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impact of production processes on the environment. Also, the importance of environmental sustainability is becoming greater due to the convergence of the circular economy and Industry 4.0, which aims to improve the efficiency of resource use (Bonilla et al., 2018; Kiel et al., 2017). Stakeholder relations in an increasingly interconnected global world are being redefined into relations based on sustainability.

Ecological sustainability, as one of the basic principles of sustainability, implies that the pursuit of meeting our needs should not threaten the quality of the environment, while future generations should have a healthy and sustainable ecosystem (Liu et.al., 2019). The constant increase in pollution and the degradation of resources lead to environmental protection becoming an ultimatum, which causes the maximum attention of business systems and governments of countries around the global world. Consequently, there are increasing efforts to adopt environmentally sustainable practices, which will contribute to creating greater value for customers, improving brand image and satisfying the interests of various stakeholders. As organizations adopt digital transformation strategies, environmentally sustainable practices can trigger the development of new business models (Feroz et al., 2021).

Environmental managers, based on the information they receive from environmental accounting, can more effectively assess the economic impacts that corporate environmental performance generates on the company's operations (Stevanović et al., 2012). The company's environmental performance can be improved by developing new products and production processes by applying modern achievements of the scientific and technical process, all with the aim of minimizing the potential negative environmental impact. Viewed from that aspect, for the environmental manager, environmental accounting is a source of financial data on technical-technological improvements within the company that have certain implications for its environmental performance.

Food and beverage industry is needed for economic growth and development of every economy, and represents one of the biggest and most influential industries in the world. This industry is distinguished by the closest ties to the community because the goods and services that it created are seen as essential, in the sense that industry output cannot be curtailed, replaced, or abolished. It is necessary for humankind survival and development. This industry tracks population growth and the amount of people's spending power. It is believed that as the food and beverage industry expand, the amount of waste will similarly rise in bulk. This raises significant questions about the sustainability of this industry.

Issues of sustainability in the food and beverage industry have attracted public attention for a long time. In the last decade, the emphasis has been placed on the sustainable operation of this industry, with a special focus on the circular economy, ethical and responsible behavior towards the environment. For the modern food and beverage industry, socially responsible business is of particular importance in order to meet the increasing demands of consumers in terms of product quality and environmental impact. There is an increased demand for better performance and quality of industrial products, greater safety and lower energy consumption, and at a lower price with as little environmental impact as possible.

The relationship between environmental performance and economic value of the Coca-Cola Company is considered in this paper. Accordingly, after the introductory considerations, the second part of the paper is devoted to some open sustainability questions of the food and beverage industry: review of the environmental impacts and importance of corporate socially responsible practice. The third part of the paper represents ecologically sustainable business of the Coca-Cola HBC Serbia; it highlights some key aspects of corporate social responsibility, and gives overview of the environmental policy activities of the company. In the fourth part of

the paper, the results of the empirical research on the relationship between environmental performance and economic value of the company are presented. The paper ends with the conclusion section.

2. Some Open Sustainability Questions of the Food and Beverage Industry: Review of the Environmental Impacts and Importance of Corporate Socially Responsible Practice

The world is seeing unprecedented levels of environmental change, which has led to new problems. Biodiversity loss and global warming are the most severe environmental consequences of developed nations' decades-long intense exploitation of natural resource stocks and ecosystem degradation to support rapid economic development. Recently, emerging and developing economies have mirrored this trend, but at a considerably faster pace, largely due to the increasing the number of populations, and middle-class consumers, acceptance of the consumption model of developed countries; enormous financial flows pursuing scarcer energy and raw resources; unprecedented shifts in economic power between advanced to emerging and developing economies; and, delocalization of manufacturing (Chen et.al., 2021).

Putting under control harmful repercussions of non- sustainable behavior on the planet and humanity have been long recognized as a way to minimize harmful environmental effects by the state regulators. Although the basic task of the government is reflected in the formulation of effective environmental protection policies, and the monitoring of the realization of defined sustainable development goals, the ecological sustainability of development is not only their responsibility. Today, the private sector plays a major role in that process, bearing the responsibility for incorporating ecological principles into practice and creating a sustainable business culture.

In an effort to meet social demands for environmental protection, many companies have introduced the practice of corporate self-regulation, which, in addition to implementing environmental management systems, also includes reporting on the company's non-financial performance. The adoption and implementation of an environmental management system, certified according to one of the two internationally accepted standards ISO 14001 and EMAS, is a good way to identify and control environmental risk, but the biggest advantage of its introduction is reflected in the reduction of costs through more efficient use of resources and energy. Providing timely, consistent and truthful information in reports on the company's environmental performance contributes to increasing the transparency of activities and has a significant role in increasing the company's credibility, as well as improving dialogue with shareholders and competent state authorities. Seen from the aspect of environmental policy, the transparency of a company's activities affects the improvement of its environmental performance and enables savings in costs and resource use. In this way, the potential negative environmental impact is minimized.

In the context of the global economy, food is key to consumer confidence, global peace, and personal sustenance. So, maintaining the movement of food through the global supply chain is essential for sustaining life (Telukdarie, Munsamy & Mohlala, 2020)

Due to the wide variety of goods and manufacturing techniques, as well as the scale of the companies and production facilities, the food and beverage industry presents an extremely diversified industry. The practical experience indicates that the food and beverage industry is

highly dependent on natural resources, and has a potential huge adverse effect on the environment. Introduction of cleaner production practices might help to offset harmful environmental effects such the decrease of the water footprint and energy losses.

Environmental impacts of food and beverage manufacturing industry can be classified into two types and presented as shown in Table 1 and Table 2 (Dri, Antonopoulos, Canfora & Gaudillat, 2015).

Table 1 Direct environmental impacts of food and beverage industry

Inputs	Energy consumption	"Energy for the operation of processing machinery (pumps, ventilation, mixers, compressors, refrigeration and cooling units). Fuel consumption for own transport fleet. Energy for space heating and high temperature processes (boiling, drying, pasteurization and evaporation)".
	Water consumption	"Water consumption for cleaning operations. Water use as an ingredient, especially for non-alcoholic and alcoholic drinks. Process-related water consumption (e.g. for washing, boiling, steaming, cooling)".
	Use of chemicals	"Use of cleaning and disinfection agents. Use of refrigerants. Additives."
Outputs	Air emissions	"Dust, VOCs, refrigerants, emissions from combustion (such as CO_2, NOX and SO_2)".
	Solid waste generation	"Non-hazardous waste from manufacturing and processing (organic residues, sludge, waste packaging, etc.). Hazardous waste from the maintenance of equipment and machinery (packaging containing residues of / or contaminated by dangerous substances, absorbents, filter materials, oil filters, etc.)".
	Waste water generation	"Process water (from washing, boiling, evaporation, extraction, filtration, etc.). Water from cleaning operations. Service water (cooling water, boiler blowdown, regeneration exchangers, etc.). Sanitary water".
	Noise generation	"Noise from the operation of plant, machinery and equipment".
	Odors generation	"Odor losses during storage, filling and emptying of bulk tanks and silos".

Source: Authors' presentation based on Dri, Antonopoulos, Canfora & Gaudillat, 2015.

Direct environmental impacts are related to the internal activities of a food or beverage manufacturer, such as companies' operations, goods, and services (over which it has direct management control). Indirect environmental impacts that can be altered to some extent by the companies' engagement with third parties, and these actions are included in the manufacturing process of a manufacturer of food or beverages and are part of the value chain.

Having in mind these environmental impacts, consumers, nonprofit organizations, governments, and other stakeholders are putting greater pressure on the food and beverage manufacturing industry to enhance its sustainability performances throughout its operations and supply chains.

Table 2 Indirect environmental impacts of food and beverage industry

Inputs	Energy consumption	"Fuel consumption for transport. Energy used by consumers for food preparation".
	Resource depletion	"Materials used for packaging production".
	Water consumption	"Water use in agriculture".
	Biodiversity loss	"Loss of biodiversity due to agricultural activities".
Outputs	Air emissions	"CO2, NOX and SO2 from transport. Emissions from industrial production of packaging, raw materials, auxiliaries. Greenhouse gas emissions from primary crop and animal production".
	Solid waste generation	"Food waste (households, wholesale/retail and food service). Packaging waste".

Source: Authors' presentation based on Dri, Antonopoulos, Canfora & Gaudillat, 2015.

Applying sustainability practices not only "improves a company's and its supply chain's environmental and social performance, but it also allows them to gain a new set of capabilities that can give them a competitive edge by pursuing sustainability activities both within and outside of their boundaries" (Saeed & Kersten, 2019). Accordingly, corporate social responsibility (CSR) represents one of the bases for understanding corporate sustainable development.

CSR has drawn a lot of interest from scholars with a variety of disciplines across the globe, and it has gained significant attention in the previous 20 years. As a consequence, „corporate social responsibility" is receiving increasing attention from academics, government officials, and business leaders.

The concept of corporate social responsibility has several different connotations, including corporate sustainability, corporate citizenship, and social responsibility. In its very beginning, CSR was presented as the required behaviors in light of societal ideals and objectives (Bowen, 1953). Similarly, the concept can be understood in such a manner that it points out that business actions have social implications, so the corporations must make business decisions taking into account societal interests as a whole, and cannot solely concentrate on the economic interests (Davis, 1960). The reason for this is the fact that businesses that overlook social responsibility may inevitably lose market share and income.

Frederick (1960) grasped the need to balance societal goals with economic ones in order for both production and distribution to be in line with socioeconomic well-being. Also, as businesses have social obligations to society in addition to their legal and financial duties (McGuire, 1963), the core of social responsibility is the relationship between enterprises and society (Walton, 1967). Milton Friedman (1970) held the view that, in a free market with open competition, the sole goal of a company's social responsibility should be profit maximization. Therefore, social activity is only appropriate when it benefits the needs of the company.

Therefore, it could be noted that in its origin the concept of CSR guarantees that the business can expand sustainably (Sharma, Sharma & Devi, 2011), in a way that implies adaptation to the environmental and social requirements of various interest groups (Miller & Guthrie, 2007).

Numerous definitions and interpretations of the concept of corporate social responsibility can be found in the literature, so "there is neither a general consensus nor a universal agreement on the definition of CSR nor a range of its main aspects" (Ounane & Yahiaoui, 2018, pp.192). The Dow Jones Sustainability Index's (DJSI) general definition

of CSR is as follows: "CSR is a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments. CSR leaders achieve long-term shareholder value by gearing their strategies and management to harness the market's potential for sustainability products and services while at the same time successfully reducing and avoiding sustainability costs and risks."

The concept of CSR can be understood as corporate and stakeholder efforts that contribute to the long-term balance in triple bottom line perspectives and their interplay in sustainable company activities (Tseng et al. 2021). As a corporate operation with an emphasis on applying processes to firms and their stakeholders, triple bottom line is a key component of CSR. The triple bottom line has a key role in in corporate sustainability since it can have an impact on raising profitability, reducing waste, and delivering customer satisfaction. Consequently, CSR is aimed at establishing sustainability equilibrium, e.g. to precise equilibrium of human needs with the health of the environment and the economy (Saunila et al.).

Socially responsible practice is an intangible asset that has a strategic importance for the company in terms of realization of the competitive advantage, improvement of the company's reputation and image, and its credibility in the market. Sustainable behavior implies innovation whose realization can contribute to lower input demand, lower costs, and the opportunity to generate new products that can leads to higher income.

However, some authors (Hartmann, 2011) emphasize that the food and beverage industry is faced with some obstacles in achieving socially responsible practice, such as: (1) "reliance on natural, physical, and human resources; (2) public concern and demand for the manufacturing process and raw material production (if organic food is utilized, animal welfare is guaranteed, the company uses sustainable energies, and trash is disposed of properly); (3) disputes within the industry, given that it has a complicated organizational structure and includes businesses of various sizes that have varied approaches to corporate social responsibility".

Also, there is a high possibility that the food and beverage industry will face a public reaction over problems of corporate social responsibility (Maloni & Brown, 2006). Such complaints focus on the company's lack of social responsibility initiatives, which may jeopardize its profitability and long-term existence. Typical examples are Nestlé and Coca-Cola (Hartmann, 2011), that were in the past operating in developing countries' subsidiaries under unfavorable working circumstances and by engaging in environmentally responsible behavior, they have suffered bad publicity. Also, campaigners have started to boycott the goods made by these corporations due to the low quality of the goods supplied in these nations.

Companies are increasingly using voluntary codes of conduct aimed at encouraging social and environmental efforts, as public criticism is not restricted to the company's internal behaviour, but to the entire industry's supply chain. The food and beverage business increasingly participates in social responsibility activities in response to the growing public perception of corporate social policies.

Due to the high level of consumer recognition that brands enjoy in comparison to other sectors of the economy, the close proximity of the final product to the consumer, and all the social and environmental impacts attributed to these companies, social responsibility worries in the food industry relate to the growing consumer value placed

on food safety in production and supervision as opposed to the risk of illness and even death.

Thus, realizing the importance of connecting the socialy responsibile practices and the mission and vision of the company, the development and implementation of projects and programs that can contribute to improving the welfare of all stakeholders, the introduction of behavioral standards through the code of conduct, and the disclosure of sustainability reports, the companies that operate in the food and beverage industry increasingly consider these aspects strategically important for the improvement of economic performance aspects.

3. ECOLOGICALLY SUSTAINABLE BUSINESS OF THE COCA-COLA HBC SERBIA COMPANY

3.1. Key aspects of corporate social responsibility

Coca-Cola HBC Group's business is focused on the production and sale of beverages in the consumer goods segment, with a focus on growth and cooperation with customers. "Annual sales of Coca-Cola HBC Group amount to over 2,000,000,000 units. Coca-Cola HBC operates in 28 countries, has 56 bottling plants, 98 distribution centers, 17,000 suppliers, more than 1,600,000 customers, and its products reach 618,000,000 people on three continents. The group directly employs 27,722 people, and indirectly provides 374,222 jobs" (Coca-Cola HBC Serbia, 2020, p. 7).

The Coca-Cola Company, whose shares are at the top of the London Stock Exchange, which testifies to its financial strength, also achieves enviable results in the area of social responsibility. Thus, according to the criteria of the Dow Jones Sustainability Index, Coca-Cola HBC Group was ranked as the most sustainable beverage producer in the world in 2021. In the last seven years, Coca-Cola HBC Group has been recognized as a global leader in the beverage industry for the fifth time, and for the tenth year in a row as one of the three best-ranked companies.

Coca-Cola HBC Serbia, as a system consisting of the Coca-Cola Company and Coca-Cola HBC Serbia, has been present on the Serbian market since 1997. Coca-Cola HBC Serbia consists of a bottling plant in Zemun with a regional juice center and factory in Vlasinka and three distribution centers. The company cooperates with over 37,000 customers and over 1,700 suppliers.

By operating on the Serbian market, one of the most active and successful business systems has been developed, as well as a reliable partner of the local community. In this regard, the company undertakes activities in the direction of achieving business sustainability goals. These goals are an integral part of the mission and vision of the parent company in accordance with the global agenda of the Coca-Cola Company for the year 2030 ”World without waste”. Also, Coca-Cola HBC Serbia is a strategic partner of the Coca-Cola Company.

Many aspects of sustainability are an integral part of Coca-Cola's business. These include sustainable water use, sustainable packaging, climate protection, human and labor rights, women's rights, community well-being and sustainable agriculture. These efforts are an integral part of the company's business policy, as evidenced by numerous projects and initiatives undertaken by the company's management, which include the following (Coca-Cola HBC Serbia, 2020, p. 41):

1. “The Coca-Cola Company began its partnership with the Red Cross in 1917. This partnership continues to this day and is essential to the company's involvement in emergency relief;

2. Lettie Pate Evans joined the board of directors in 1935 as the first woman on the board of a major company;

3. The first diet drink, Tab, was produced by Coca-Cola in 1963. Tab was introduced before the early growth of the low-calorie soft drink segment, and the drink was developed for consumers who wanted to "watch their calories";

4. In 1966, the company launched its first "Nutrition Project", with the aim of finding a solution for the so-called "protein gap" faced by the world's impoverished nations and the provision of more protein-rich soft drinks. As a result of this project, the brands of three protein-rich energy drinks, Saci, Sanson and Tai, developed in Latin America, which use local ingredients, such as soy and whey as a source of protein for the drinks;

5. With the founding of the Coca-Cola Foundation in 1984, the company committed to allocating 1% of its annual income to solving key problems in three areas: protection of the position of women, water protection and well-being;

6. In 2007, the company founded the Coca-Cola Africa Foundation, which worked on the prevention and treatment of HIV/AIDS in Africa, all with the aim of promoting human health. Since its inception, the Coca-Cola Africa Foundation has launched numerous projects and initiatives across Africa;

7. In 2007, the company announced a transformational partnership with the World Wide Fund for Nature (WWF) to address freshwater conservation challenges;

8. In 2009, the company introduced Plant Bottle Packaging, the first recyclable PET plastic beverage bottle made 30% from plants. The company has continued to develop sustainable packaging, including creating the world's first prototype PET bottle made entirely from plant-based materials in 2015;

9. In 2020, the company launched the 5by20 Initiative, with the aim of acting as a reliable partner of the local community. In this regard, the company undertakes economically empowering 5 million female entrepreneurs around the world. Through the initiative, women are offered access to business skills courses, financial services and connections with colleagues or mentors;

10. The company founded the first ECOCENTER in 2013. EKOCENTER is a modular community marketplace run by local women entrepreneurs that provides safe drinking water, wireless communication, electricity and other functionalities to accelerate entrepreneurial opportunities and community development”.

Coca-Cola HBC Serbia is committed to responsible behavior towards the environment. Environmental impact management, i.e., identification and assessment of environmental impacts, as well as improvements in terms of protection and monitoring of the achievement of environmental goals, are an integral part of the company's operations.

The company, at the level of the Group, with the new sustainability goals until 2025, has committed itself to achieving the following 17 goals in six priority areas to 2017 as the base year, namely: reduction of emissions, water consumption and management, a world without waste, responsible supply, nutrition and community (Coca-Cola HBC Serbia, 2020). In the area of emissions reduction, Coca-Cola HBC Group, in accordance with its sustainability goals by 2020, has committed to reducing the intensity of direct carbon emissions by 50%, as well as reducing carbon emissions in the value chain by 25 percent.

Given that packaging is one of the most important factors in maintaining the quality and safety of the company's products, and bearing in mind that this aspect of the business has significant impacts on the environment, the company continuously strives to close the recycling cycle, converting already used packaging into new. In addition, the development of packaging that has less weight and the reduction of the amount of waste, as well as the increase in the content of recycled and renewable material in the composition of new packaging, constitute a set of new activities of the company. All this is achieved by taking actions to facilitate and optimize packaging.

The World Wide Fund for Nature (WWF-CEE) and the Coca-Cola Foundation are working to further develop their unique partnership for large-scale river and wetland restoration in the Danube River Basin. Wetlands cover about 6% of the surface of the planet Earth, with 87% of the area lost in the last 300 years. Wetlands are now disappearing three times faster than forests, thus putting the plant and animal species that live there in danger of extinction. More than 80% of the wetlands in the Danube basin have been lost in the last 150 years, and with them all the benefits of the ecosystem. Lost wetlands affect: declining fish and wildlife populations, reducing water quality, and jeopardizing needed biodiversity. At the same time, it is known that wetlands act as a buffer for flood waters and are becoming more and more valuable in the face of climate change.

In 2021, WWF-CEE, the Coca-Cola Foundation and the International Commission for the Protection of the Danube River (ICPDR) successfully completed the first phase of an intersectoral partnership to promote the protection and restoration of wetlands in the Danube River Basin. With its participation of 4.4 million dollars, the Coca-Cola Foundation supported the eight-year Partnership for the Living Danube, and thus contributed to the restoration of vital wetlands, rivers and floodplains along the Danube River and its tributaries, thereby increasing the capacity of the river itself. The Partnership for the Living Danube has restored over 5,462 hectares of wetlands, an area larger than 7,422 football fields. In this way, the capacity of the Danube was increased by 13 million m3, which is equivalent to a volume greater than 4,800 Olympic swimming pools.

3.2. The environmental policy activities of the company

The Coca-Cola Company is aware of how important it is for the system as a whole to maintain a sustainable and healthy environment. This conviction is ingrained in the Company’s business vision and supports its mission to improve the world.

The goal of the Company is to develop the brands and beverage options that people like, to revitalize them physically and mentally in such way that builds a more sustainable company and a better future for all.

The Company management should run the company in a way that minimizes the impact on the environment while protecting and preserving it. Working with carefully chosen vendors and business partners who are steadfastly dedicated to the management of sustainable operations and procedures is part of this.

In order to achieve this goal, the Company’s activities are directed towards the following environmentally significant areas:

Improve water security in the areas where the Company operates, obtain ingredients, and interact with people; continually increase the effectiveness of water use in the operations, assist in addressing common water issues to develop more durable ecosystems; and by promoting ecologically friendly practices.

In order to contribute to the global efforts in the field of climate protection, Company's activities are directed towards reducing carbon emissions throughout the supply chain, reaching net zero emissions by 2050; and using sources of renewable energy, increasing energy efficiency, waste reduction, and using innovative equipment.

In order to fulfill the Company vision of waste-free future, the packaging will be recycled and innovatively used to create new packaging in a circular economy. The Company introduced the World Without Waste program in 2018, and as part of it, it seeks to promote recycling and packaging collection, increase the usage of recycled materials, and bring partners and customers together to support a clean, healthy environment.

The Coca-Cola Company is committed to acquiring its agricultural ingredients in a way that is more morally and environmentally responsible. So sustainable sourcing, as one the most urgent environmental initiatives of the Company, is grounded on the first principles for sustainable agriculture based on environmental, social, and economic factors as described in The Principles for Sustainable Agriculture (PSA), the follow-up to the Sustainable Agriculture Guiding Principles (SAGP).

The above targets' achievements are presented annually in Company's Business & Environmental, Social, and Governance Report, which demonstrates its ongoing efforts to integrate sustainable business practices into core strategy.

4. EMPIRICAL RESULTS

In order to empirically test the research assumptions about the relationship between environmental performance and the economic value of the company, a multi-criteria analysis was applied to a set of selected indicators of economic (*gross income* and *amount of recycled material*) and environmental performance (*total water consumption*, *material use*, *total energy consumption*, *amount of production waste*, *CO_2 emissions*) of Coca-Cola HBC Serbia in the period from 2013-2021.

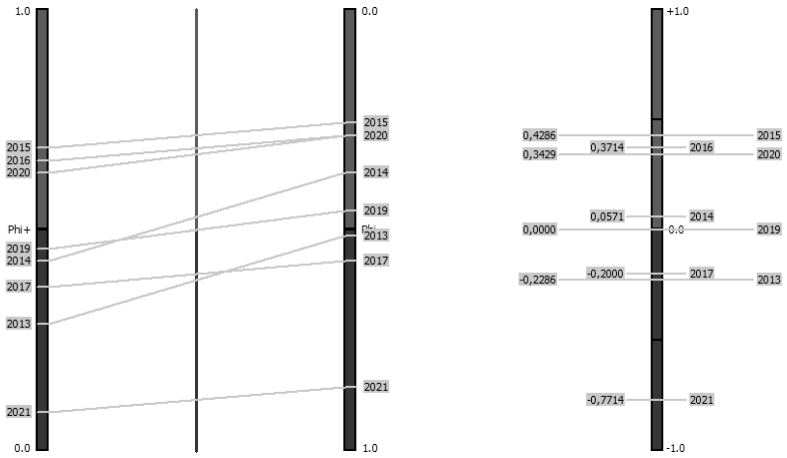

Fig. 1 PROMETHEE I Partial Ranking and PROMETHEE II Complete Ranking
Source: Authors

Based on the obtained results, it can be seen that the total consumption of water, the use of materials, the total consumption of energy, the amount of production waste, the emission of CO_2 is the highest in 2015, while the lowest consumption was achieved in 2021. Figure 1 shows PROMETHEE I Partial Ranking and PROMETHEE II Complete Ranking of the included environmental indicators. This analysis suggests and helps decision makers to focus on the causes that may have led to certain results by age.

On the other hand, by applying the *Visual Promethee Academic* multi-criteria decision-making software, the business performance of the analyzed company was ranked by year in the period from 2013 to 2021. Figure 2 shows the Input-Output Efficiency analysis, which suggests that the highest economic value, measured by the realized gross income and the amount of recycled material, was achieved in the last analyzed year (2021). The realized value is the result of the numerous activities that company undertook in previous years in the field of corporate social responsibility.

Based on the displayed results, the direction of the relationship between environmental performance (t*otal water consumption, material use, total energy consumption, amount of production waste, CO_2 emissions*) and economic value of the company (*gross income, amount of recycled waste*) can be determined. Namely, in the last observed year, when the company Coca-Cola HBC Serbia achieved the most favorable environmental performance, the highest economic value of the company was recorded.

Figure 3 presents GAIA Visual Analysis which is a multidimensional representation of the decision problem with as many dimensions as the number of criteria (seven in this analysis). A mathematical method called the Principal Components Analysis is used to reduce the number of dimensions while minimizing the loss of information.

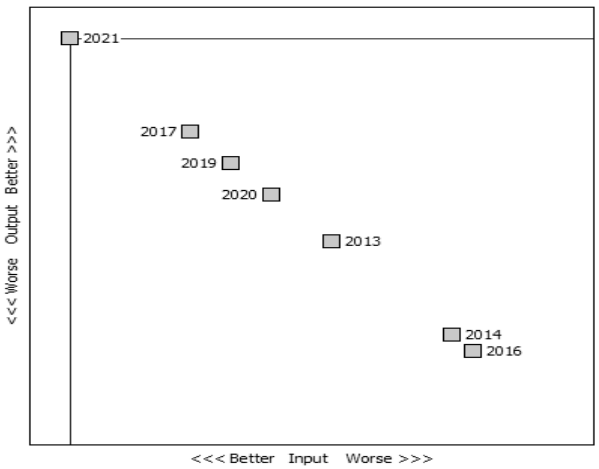

Fig. 2 Input-Output Efficiency: gross income and production waste
Source: Authors

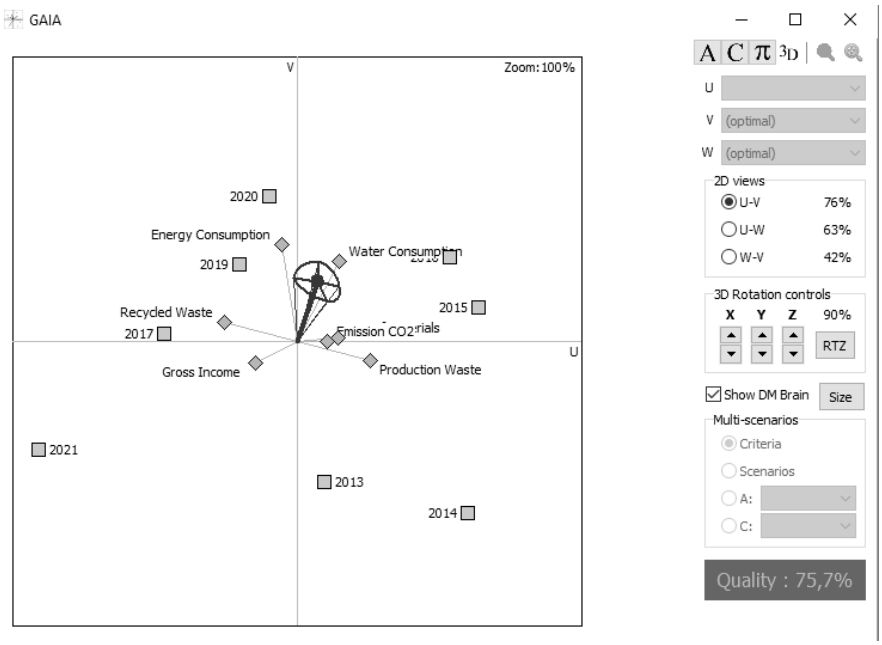

Fig. 3 GAIA Visual Analysis
Source: Authors

In Visual PROMETHEE three dimensions are computed:

- U is the first principal component, it contains the maximum possible quantity of information,
- V is the second principal component, providing the maximum additional information orthogonal to U,
- W is the third principal component, providing the maximum additional information orthogonal to both U and V.

In practice the 2D GAIA analysis is reliable when the quality level is above or close to 70%. The orientation of a criterion axis indicates where the best actions for this criterion are located. Figure 3 shows that water consumption was the lowest in 2016; we had the lowest CO2 emissions in 2015; the lowest energy consumption was recorded in 2020; the lowest amount of production waste was during 2013 and 2014, while the highest economic value measured by gross income was achieved in 2021.

In this way, the basis for further research in this area was created, and the applied methodology can basically be applied in other industries as well. Future research can focus on the consumption behavior in the food and beverage industry, and the costs of the recycling process that companies incur when implementing this strategy.

5. CONCLUSIONS

Environmental economics, which is based on the neoclassical model and emphasis on negative externalities, is the study of the cost-effective allocation, use, and protection of

the world's natural resources. A major subject of environmental economics are the additional costs of doing business that are not paid by the business or its consumers. Putting under control harmful repercussions of non- sustainable behavior on the planet and humanity have been long recognized as a way to minimize harmful environmental effects by the state regulators. Although the basic task of the government is reflected in the formulation of effective environmental protection policies, and the monitoring of the realization of defined sustainable development goals, the ecological sustainability of development is not only their responsibility. Today, the private sector plays a major role in that process, bearing the responsibility for incorporating ecological principles into practice and creating a sustainable business culture.

From the aspect of environmental policy, the transparency of a company's activities can improve environmental performance and enable savings in costs and resource use. Hence, the potential negative environmental impact is minimized.

Due to the wide variety of goods and manufacturing techniques, as well as the scale of the companies and production facilities, the food and beverage industry presents an extremely diversified industry. In addition, the food and beverage industry is highly dependent on natural resources, and has a potentially huge adverse effect on the environment. Introduction of cleaner production practices can help to offset harmful environmental effects such the decrease of the water footprint and energy losses. Direct environmental impacts are related to the internal activities of a food or beverage manufacturer, such as companies' operations, goods, and services (over which it has direct management control). Indirect environmental impacts that can be altered to some extent by the companies' engagement with third parties, and these actions are included in the manufacturing process of a manufacturer of food or beverages and are part of the value chain.

The Visual Promethee Academic multi-criteria decision-making software was applied in the paper in order to rank selected business performance of the analyzed company by year, in the period from 2013 to 2021. Based on the PROMETHEE I Partial Ranking and PROMETHEE II Complete Ranking of the included environmental indicators. it can be concluded that the total consumption of water, the use of materials, the total consumption of energy, the amount of production waste, and the emission of CO_2 is the highest in 2015. Also, when the company Coca-Cola HBC Serbia achieved the most favorable environmental performance, the highest economic value of the company was recorded. In addition, Input-Output Efficiency analysis suggests that the highest economic value, measured by the realized gross income and the amount of recycled material, was achieved in 2021. The realized value is the result of the numerous activities that company undertook in previous years in the field of corporate social responsibility. This analysis could help environmental and financial managers make optimal decisions at the right time, and perform effective monitoring of environmental and economic business indicators.

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ANALIZA ODNOSA IZMEĐU EKOLOŠKIH PERFORMANSI I EKONOMSKE VREDNOSTI KOMPANIJE

Značaj održive životne sredine postaje sve veći jer doprinosi stvaranju veće vrednosti za kupce i konvergenciji cirkularne ekonomije i Industrije 4.0, što može poboljšati efikasnost korišćenja ograničenih resursa. Na osnovu informacija iz računovodstva životne sredine, menadžeri mogu efikasnije proceniti ekonomske uticaje koji ekološki učinak generiše tokom poslovanja. Ekološki učinak može se poboljšati razvojem novih proizvoda i proizvodnih procesa kako bi se minimizirao potencijalni negativni uticaj na životnu sredinu. Mnoge kompanije su uvele praksu korporativne samoregulacije, koja uključuje sisteme upravljanja životnom sredinom i izveštavanje o nefinansijskom učinku kompanije. Dobijeni rezultati sprovedenog empirijskog istraživanja bi mogli da pomognu menadžerima da donese optimalne odluke u pravo vreme, i da tokom vremena izvrše efikasan monitoring i rangiranje ekoloških i ekonomskih pokazatelja poslovanja.

Ključne reči: *ekonomija životne sredine, recikliranje otpada, bruto prihod, industrija hrane i pića, društveno odgovorno poslovanje*