

ENVIRONMENTAL GOALS AND PLANNING THE ACTIVITIES FOR THEIR ACHIEVEMENT IN "ZAGORKA" BREWERY

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Abstract

ZAGORKA SA, a leading Bulgarian brewery and part of the HEINEKEN Corporation, has built a strong reputation for innovation and sustainable practices in the brewing industry. Anchored by its "We Create a Better World" platform, the company has pursued eco-friendly goals aligned with the United Nations Sustainable Development Goals and HEINEKEN's values. Over the years, ZAGORKA SA has implemented a responsible environmental management system (EMS) to reduce carbon emissions, improve water and energy efficiency, and support a circular economy. Key initiatives include an advanced wastewater treatment facility, solar energy integration, and a comprehensive waste management system. In recent years, the brewery has intensified efforts to achieve carbon neutrality by 2040 and has made significant strides in water conservation and renewable energy adoption, notably with the installation of the first solar park among Bulgarian brewers. This paper evaluates ZAGORKA SA's EMS efficiency, analyzing its environmental policies and practices to meet resource optimization, emission reduction, and sustainability targets within a corporate and industrial context.

Keywords: emissions, environment, circular economy, energy, efficiency, solar, integration, conservation.

INTRODUCTION

ZAGORKA SA is one of the most innovative companies in the brewing industry. The company's portfolio offers a variety of high-quality products that meet the taste of the demanding Bulgarian consumer. ZAGORKA SA, part of the HEINEKEN Corporation, not only sets green goals, but also implements them responsibly and sustainably for more than 10 years through the platform "We are creating a better world", which is an important part of the corporate philosophy and a model for the way at work in the enterprise.

ZAGORKA SA is a Bulgarian brewer with rich traditions, which for 120 years has been taking responsibility in every step it takes, with its consumers, partners, employees and society in mind. The green principles, for the enterprise are an important part of its corporate culture, through which they strive continuously to implement innovative solutions and reduce the carbon footprint of production. Every year, ZAGORKA SA develops and supports initiatives in accordance with specific public

and environmental needs. "We create a better world" is a long-term platform for sustainable development in line with the values of the HEINEKEN Corporation and the UN Sustainable Development Goals. This study aims to evaluate the efficiency of their environmental management system. The main purpose is to analyze the environmental policies and approaches applied by the brewing industry to optimize the use of resources, reduce carbon emissions and water resources, increase energy efficiency and circular economy.

In 2021, the brewery raises its goals towards a more environmentally, socially sustainable and responsible consumption, thanks to the new commitments it is making until 2030. Achieving net zero emissions in production along the entire value chain by 2040, 10 years before the Paris Agreement deadline [1]. The project "We create a better world" encompasses and engages the people inside the company - its employees, as well as all suppliers, partners, interested third parties and even consumers. The goals set in the company's project are related to carbon

neutrality, protection of water resources, recycling and circular economy.

EXPOSITION

For the implementation of a working and effective environmental management system, it is necessary to know in detail the production process itself, the input raw materials, the consumption of resources, the generated residual products and/or production waste. The production of beer is mainly carried out from 3 components: water, malt and hops.

The company uses water both for production and for sanitary and domestic needs. The water supply network in the brewery is organized in such a way that it allows water intake from underground water, through 3 own drilling wells. The annual rate of efficiency in the use of water in the enterprise is 4.48 m³/t per unit of product (Tab.1), according to the issued Complex permit [2]. One of the stated goals of the brewery is the protection of water resources [3]. When chronologically tracking the water consumption of the enterprise in a period of 5 years (from 2019 to 2023), it is evident that ZAGORDA SA is successfully achieving its set goals.

To protect water resources, the company has built its water supply and sewerage network in such a way that no mixing of wastewater generated by its activities is allowed. The brewery has invested in its own wastewater treatment plant, which eases the work of the city's treatment plant. The enterprise has directed its efforts to the reuse of already spent water quantities, which are used for heating and irrigation purposes.

The application of the instructions for the operation and maintenance of the equipment is related to improving the efficiency of the equipment, which in turn leads to the efficiency of the installation in terms of the use of electricity and heat (Tab.1).

The site ground, where the production is located, is a source of pollutant emissions in the wastewater. For the year 2023, 184,92 m³/y were formed and taken to the WWTP, with 836,32 m³/y permitted. Documentation

of the results of monitoring the values of the monitored indicators, determined with a frequency of "once every 3 months" [3], is carried out. Measurements are carried out by accredited laboratories, and the results are reflected in protocols. Internal measurements are also carried out during the year by the brewery's laboratory to monitor certain parameters of the wastewater.

In 2021, 27% of HEINEKEN's energy worldwide is procured from renewable sources, including 52% electrical (via solar panels, wind installations and hydro-generated power) and 17% thermal (biogas, biomass, heat pumps, destruction of waste).

In 2021, ZAGORKA SA strengthens its efforts to achieve green production by installing the first solar park in the brewery in Bulgaria. Thanks to solar panels, part of the production of the products is powered by green energy.

To follow its goals beyond production, to keep the produce refreshingly cold, the company adheres to environmental standards and uses refrigerated display cases that consume 30% less energy.

The company uses biogas as a renewable energy source, which it extracts from the wastewater of our treatment plant. For 2021, renewable energy grows by 4%.

As for waste management, ZAGORKA SA is certified according to the ISO 14001:2015 standard. A working waste management system has been introduced, which was developed in accordance with the requirements of the Law on Waste Management and the regulations in The Republic of Bulgaria [4]. On the territory of the company, six sites are designated for the temporary storage of production and hazardous waste generated during work. Open areas with a durable concrete surface have been built on which waste with non-hazardous properties is temporarily stored. In order to avoid mixing individual wastes, the sites are sectioned, and signs are placed on each container with the names of the wastes and their codes according to Regulation 2 for the classification of wastes [4].

One of the greenest oriented steps for ZAGORKA SA is the project to build a solar park in the brewery in Stara Zagora. To reduce the carbon footprint and use solar energy directly in the production process, the company installed its first photovoltaic

panels and now they are already in operation. The solar park is the first of its kind among brewers in Bulgaria and includes 2,028 photovoltaic panels with 730 kW of installed capacity and a production of 840 MWh per year. As a result of the activities to achieve the set goals, 17 tons of carbon dioxide, equal to 25 trees and 14 tons of coal, have been saved so far.

Table. 1. Resource consumption per product by ZAGORDA SA.

| Resources | Year | Consumption | |
|----------------------|------|------------------------|----------------------------------|
| | | Per product | Annual quantity used per product |
| Water usage | 2023 | 4,48 m ³ /t | 3,11 m ³ /t |
| Electricity usage | 2023 | 0,09 MWh/t | 0,0790 MWh/t |
| Thermal energy usage | 2023 | 0,28 MWh/t | 0,271 MWh/t |

CONCLUSION

The corporate policy of ZAGORKA SA includes the responsibility and ambition to create a better world, both globally and

locally, along the entire supply chain - from barley to the beer that consumers hold in their hands. Over the past decade, through the company's sustainable development strategy, it has managed to make a positive impact on environmental protection and support to local communities, driven by the process of innovation and cooperation.

Entering decades in which the world must face even more complex challenges and companies are aware that they can only prosper when they take care of our planet. Today, this is needed more than ever, whether we are talking about climate change, water and resource scarcity, or addressing topics such as justice for a healthier society.

REFERENCE

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- [3] The Environmental Protection Act of The Republic of Bulgaria (EPA).
- [4] Waste Management Act (promulgated SG No. 53/13.07.2012).