



Food quality and safety in the brewing industry

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Abstract

The article presents the importance of economic and social responsibility of the brewing industry, pointing to the aspect of synergy related to the brewing industry in the processes of economic development (creation of many jobs in the agricultural sector, retail trade and gastronomy), stimulating specific areas of local and regional development. The principles of organization and supervision of food quality and safety in beer brewing as well as the importance of implementing management systems in the activity of brewing industry companies were presented.

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1. Introduction

The brewing industry market in Poland is one of the fastest growing industries, which results from changes in preferences of consumers who choose increasingly weaker alcohols. The good condition of the brewing industry is important for the creation of jobs and economic growth.

With the annual production of 40 million hl, Poland is the third largest producer of beer on the Old Continent, and the brewing industry is the largest employer in the domestic alcohol sector and the second payer of beer excise in Europe. The total employment generated by breweries in the Polish economy is 205,000 job places which is twice as high as the number of jobs related to the production and sale of spirit drinks (97,554 - data from the report: Socio-economic impact of the spirits industry in Poland 2013-2014).

The activity of the brewing industry influences not only the labor market but also the state budget revenues. In 2016, due to the brewing and sale of beer, the state budget gained nearly **PLN 10 billion** (data from the EU Report 2016: The Contribution made by Beer to the European Economy):

- excise tax PLN 3.56 billion,
- VAT (retail trade) PLN 1.29 billion,
- VAT (gastronomy) PLN 3.14 billion,
- income tax (brewing industry) PLN 0.40 billion,
- income tax and Social Insurance Institution (related industries) PLN 1.51 billion.

One third of this amount (PLN 3.56 billion) were excise tax revenues - the second in Europe, after Great Britain and

before France and Germany-in terms of the value of excise tax on beer (data from: Beer statistics 2016 edition).

The tendency of the last few years is an increase in the number of contract, craft and restaurant breweries in relation to the decreasing number of industrial breweries. Three biggest beer producers in Poland: Carlsberg Polska, Grupa Żywiec and Kompania Piwowarska are associated in the Employers' Union - Browary Polskie (Polish Breweries). Other beer producers, including restaurant breweries, are part of the Association of Regional Polish Breweries - Polskie Piwo (Polish Beer).

Beer as a foodstuff is covered by European regulations and procedures regarding food safety (as of 1 January 2007, food regulations have been in force in the EU forming so-called "**Hygiene Package**", that is EC regulations laying down the rules of hygiene of foodstuffs and the rules of conduct of the authorities supervising the food sector.) and its proper health quality, enforcing proper storage and transport conditions and determining the management of supply chains.

2. Aims

The aim of the study is to present the functioning of the brewing industry operating in the global environment. Economic and social responsibility of the company stimulating specific areas of local and regional development is also important. Showing and defining the analysis of critical issues of food quality and safety in beer production is no less important. The determination of the previous issues has a sig-

nificant impact on the proper functioning of the internal quality control system in the Kompania Piwowska. Considering the above, it is possible to determine the directions of activity of the brewing industry in the era of globalization.

Nowadays, it is justified to supplement the paradigm of Taylor's labor and specialization principle (optimization of use capital-intensive machines and devices in the era of mechanization), by the concepts of logistic and marketing management. The basis for the development of the global economy in the era of globalization are smart organizations, enterprises operating in the areas of developing local, national and international markets. It is more commonly claimed that the real value of an enterprise company is primarily in the "strength" of its participants' minds, which enables functioning in changing conditions as well as the use of volatility as an opportunity for its own development. Issues determining quality and safety in beer production are presented on the basis of published studies of the brewing industry (Sustainable Development Report for Calendar Year 2017 of Kompania Piwowska).

3. The advantages of implementing a safety system and quality management

Kompania Piwowska was founded in 1999 and in April 2017 it changed its owner, which is now the Japanese Asahi Group Holdings, Ltd. (however the traditional recipes of Kompania Piwowska brewing brands have been preserved) and, as a global company, it respects global ecological, economic, quality and social trends and supports local community initiatives and is one of the leaders of responsible business in Poland. In 2017 Kompania Piwowska maintained its strong position as the leader of the Polish beer market with a sales at 13.8 million hl, which makes for a 36.9% share in the Polish beer market.

It directly employed 3,261 people and in retail sale market around 9,700 full-time jobs depending on beer sales. The company also has a significant impact on the gastronomy - sale of Kompania Piwowska's products contributes to maintain 13 900 full-time jobs in this industry, and it also has an indirect impact on employment results in the supply chain. Only thanks to the purchases carried out by Kompania Piwowska, there are 33, 500 jobs. It has been estimated that the total impact of purchases, production and sales of Kompania Piwowska's products generates over 60,400 jobs in total.

Kompania Piwowska is the largest beer producer in Poland, which is brewed in three breweries: in Białystok, Tychy and Poznań. Sales are run by 11 distribution centres, 6 sales subsidiaries and 14 sales branches throughout the country. The portfolio of Kompania Piwowska's brands includes, among others, the following brands of beer: ŻUBR, TYSKIE, LECH, REDD'S, KSIĄŻĘCE as well as: DĘBOWE, WOJAK, GINGERS and international premium brands: PILSNER URQUELL, GROLSCH, PERONIA NASTRO AZZURRO and MILLER GENUINE DRAFT.

Critical analysis of quality and safety issues in beer production was based on the subject literature and published

researches of the brewing industry in particular of the Kompania Piwowska's Sustainable Development Report for Calendar Year 2017.

Attention to the quality of the products is the result of using the centuries-old traditional methods of brewing, modern technology, care for the highest quality of raw materials used to brew beer and compliance with the rules of production. The quality of all ingredients used in the production process and the product itself is tested at every stage of the life cycle in accordance with the applicable standards restrictions of quality and safety of products. There is also a sensory panel which aim is to test beer samples to ensure consistent quality of the brands produced in the company.

Kompania Piwowska implements the sustainable development strategy "Bet on beer" which supports saving water and energy, supports the development of business partners and promotes responsibility and moderation in alcohol consumption. Moreover, it trains sellers and small entrepreneurs, working to build the future. Five sources of growth have been identified as part of this strategy: business and community development, responsible consumption, water saving, efficient and friendly cultivation, clean environment - which creates a natural space for achieving business benefits while at the same time maximizing involvement in economic and social development and environmental protection at the local and global level.

The internal control system of Kompania Piwowska consists of many elements which are the rules of conduct and applicable procedures, structures and processes, internal control services. These are confirmed by the following certificates:

Quality Management System (QMS) according to ISO 9001: 2015 The standard is focused on understanding and meeting customer requirements. The main requirements of the ISO: 9001 standard include: introduction of supervision over documentation and records, management's involvement in building a quality management system, systematization of resource management, establishing product implementation processes, making systematic measurements (customer satisfaction, products, processes).

Environmental Management System (EMS) according to ISO 14001: 2004, is a set of requirements related to the Environmental Management System, created in order to define rules regarding environmental protection, taking into account socio-economic conditions. In Kompania Piwowska the aspects of operations that affect the natural environment and the elements of potential threats were defined. A system checking program was also implemented to ensure continuous improvement of business procedures.

However, the basic legal obligation for all organizations in the food sector throughout the food chain is to maintain the health safety of manufactured products, according to mandatory management systems which include food safety management according to ISO 22000 and according to the requirements of the EU Hygiene Package and relevant national provisions.

Food Safety Management System (FSMS) takes into account ISO 22000: 2005 (quality management according to

the ISO 22000:2005, includes specific for food safety requirements: communication in the internal supply chain and with suppliers and customers, quality system management should be included in all activities related to company management, program monitoring- concerning: land and building plans, media supply, services, materials management, measures to prevent cross-infection, pest control, personnel hygiene, verification of HACCP principles - with emphasis on the analysis and monitoring of risk surveillance measures as a key to the effectiveness of the system's functioning), ISO / TS 22002-1: 2009 and FSSC 22000 requirements. This standard defines international and national requirements for food safety, and its implementation supports the realization of Kompania Piwowarska's primary goal - the production of beer which is safe for consumers' health. As part of food safety, the FSSC 22000 system was also certified in breweries, which is an extension of the ISO 22000 standard, providing protection against intentional or accidental contamination of food and bioterrorism. As part of the system the Food Defense Plan was implemented, which describes the appropriate and planned actions and resources to prevent contamination.

Occupational Safety and Health Management System according to OHSAS 18001: 2007, presents requirements concerning the Occupational Safety and Health Management System in order to enable the organization to define policy and objectives in this respect. OSH policy includes the organization's commitment to preventing accidents at work and occupational diseases, striving for continuous improvement of OSH, compliance with legal requirements, continuous improvement of OSH measures, providing adequate resources for implementing this policy and improving employee qualifications and hygiene.

Energy Management System according to ISO 50001: 2011, which specifies the requirements for assessment, implementation, maintenance and energy management - and the purpose of its implementation is to enable the organization to apply a systematic approach in achieving continuous improvement of energy efficiency, including energy efficiency, energy use and its consumption.

Kompania Piwowarska also manages risk, that is, identifies and evaluates risks, qualifies them, takes actions to reduce or eliminate them - through the implemented process of reporting and reviewing existing risks. Risk analysis and assessment covers all areas: strategic, operational and financial.

Kompania Piwowarska has also implemented the Code of Ethics, containing a system of values, which is treated as a guide by making decisions in compliance with regulations and business ethics - both regarding relations at the workplace, as well as cooperation with partners, consumers and local communities. Product packaging contains information about the product's composition place of production, origin and market information such as a bar code, the sign of recycling or the possibility to return the packaging. On all packaging there is also a marketing message and voluntary liability labels: **"I never drive after alcohol"** or **"Alcohol. Only for adults"**.

Supervisory systems are based on international standards and have been combined as part of an **Integrated Risk Management Services (IRMS)**, which facilitates the management of all systems and ensures the conscious implementation of their assumptions by all employees to guarantee the quality of beer production processes with minimized negative environmental impact and optimal energy consumption. The implementation of **"Audyt ON"** project covers all eating places that are served by Kompania Piwowarska. The project assumes monthly reaching of external auditors to over 750 eating places serviced by sales representatives and conducting, among others, special surveys to determine TQDB and TQO indicators.

TQDB (Trade Quality Draught Beer) is an indicator of beer quality in kegs and method of mounting and placement of equipment, evaluation of keg time, proper rotation and sensory.

TQO (Trade Quality in Outlets) is an indicator of the quality of beer in cans / bottles in gastronomy with elements of the assessment of the quality of beer storage in premises. Thanks to these measurements a reliable sample of the TQDB and TQO indicator is obtained.

4. Summary and conclusion

Determining the safety and quality of food in the processes of company management in the food industry is a prerequisite for undertaking production activities of enterprises. The selected determinants of safety and quality management presented in the article on the example of Kompania Piwowarska indicate that normative EU and international requirements concerning quality and safety in food production are met and management creates the possibility of distribution channels with access to global networks. An important determinant for obtaining competitive advantages are activities related to the implementation of the traceability of a full product chain, starting from sources of origin of raw materials to the final product. Ensuring the quality and safety of food products through the introduction of formalized ISO 22000 / HACCP quality management systems and the QMS system as well as environmental management in the EMS system is a prerequisite for the synergy of activity in the brewing industry.

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酿造业的食物质量和安全

關鍵詞

酿造业
区域发展
食品安全
管理

摘要

文章介绍了酿造业经济和社会责任的重要性，指出了经济发展过程中与酿造业相关的协同作用（在农业部门创造了许多就业机会，零售贸易和美食），刺激地方和区域发展的具体领域。介绍了啤酒酿造中食品质量安全的组织和监督原则，以及在酿酒行业公司活动中实施管理制度