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## **THE FINANCIAL EFFECTS OF INVESTMENTS REALISED UNDER SUSTAINABLE DEVELOPMENT – A CASE OF A POLISH COMPANY REPRESENTING THE RENDERING INDUSTRY**

### *FINANSOWE EFEKTY REALIZACJI INWESTYCJI WPISUJĄCYCH SIĘ W IDEĘ ZRÓWNOWAŻONEGO ROZWOJU – PRZYPADEK POLSKIEGO PRZEDSIĘBIORSTWA PRZEMYSŁU UTYLIZACYJNEGO*

**Key words:** sustainable development, the rendering industry, ratio analysis

*Słowa kluczowe:* zrównoważony rozwój, przemysł utylizacyjny, analiza wskaźnikowa

*JEL codes:* Q57, G39

**Abstract.** The paper illustrates the introduction of ecological innovations by a Polish company operating within the rendering industry. The investment resulted not only in the management of large amounts of waste, but also enabled their re-use, thus contributing to environmental protection. However, this is not the only effect of the investments. An improved innovative production process enabled the company to improve its financial situation and, consequently, to gain the position of one of the leaders in the rendering industry in Poland. The methods applied in the research included a descriptive method, a case study method, a personal interview and ratio analysis of financial statements from the examined company. The study used data and materials provided by the company.

## **Introduction**

Sustainable development is defined as socio-economic development, which allows combining efforts of man to achieve a high level of economic development with concern for the social and natural environment [Terlecka 2014]. It is intended to eliminate poverty and ensure intra and inter-generational social justice [Górka 2010]. An element of sustainable development is to care about the natural environment, which manifests itself also in taking care of natural resources. Innovation in industry, aimed at reducing pollution and waste as well as the use of renewable energy sources fit into this concept.

When conducting management processes, one should carefully consider the consumption of raw materials, which can be done by encouraging their re-use and recycling. As noted in the Report of the World Savings Strategy from 1980, the loss of natural resources is a barrier to sustainable development [Chrzęścik et al. 2010].

As pointed out by Rogall, ‘sustainable development aims to ensure every person living today as well as future generations sufficient environmental, economic and socio-cultural standards within the limits of the natural strength of the Earth, following the principle of intra and inter-generational justice’ [Rogall 2010, p. 44].

Sustainable development is related to innovation, particularly to eco-innovation, whose important area is the production process [Chrzęścik et al. 2010]. Innovations are seen as a priority source of competitiveness, economic growth and employment [Poskrobko, Zielińska 2015]. An important aspect of innovation is to optimize the technological process relative to quantity and quality of waste [Chrzęścik et al. 2010]. The company, which satisfies the requirements of environmental protection, including the reduction of the quantity and quality of waste, is more likely to strengthen its market position better and quicker [Chrzęścik et al. 2010].

Ecological innovations have become an increasingly popular foundation for building a competitive advantage [Łapińska 2014]. A company introducing organic production can reduce the costs of production, storage, or disposal of waste, and thus reduce its costs and increase profits, improve profitability, and quite frequently such a company strengthens its competitive position in the market.

### **Material and methods**

The objective of this study is to demonstrate the impact of ecological innovation as a realization of the idea of sustainable development, on the improvement of market position and the results achieved by a company operating in the rendering industry. The article presents a solution implemented by one of the largest Polish companies dealing with animal waste management – the Struga S.A. company. The focus is on showing the effects of financial investments implemented under the idea of sustainable development. The major research methods applied were a descriptive method, case analysis, and ratio analysis of financial statements of the researched company. The study was based on the financial statements of the Struga S.A. company prepared for the years 2005-2015, as well as on the information concerning the investments made and obtained through personal interviews conducted with representatives of the examined company.

#### **Description of the activity and investment in the Struga S.A. company**

The rendering industry plays a very important role in any economy, since it disposes of animal waste generated in the production and processing of meat. The industry realizes therefore important sanitary and hygienic goals, which is an essential element in combating and preventing infectious animal diseases.

Formerly, disposal of animal waste was limited mainly to the production of meat and bone meal, which was used as an organic fertilizer improving soil properties. Due to the high content of easily digestible protein, over time meat and bone meal became one of the main nutrients of animals for slaughter [Sienkiewicz, Wesołowski 2015]. The situation changed in the 90s of the twentieth century, when BSE disease (BSE stands for ‘Bovine Spongiform Encephalopathy’) was diagnosed in cattle. As a result of the emergence of a new disease, the European Union banned the use of meat and bone meal in nutrition of animals for slaughter. Following the decision of the EU, in 2003 Poland also introduced a similar ban [Dz.U. 2003, nr 165, poz. 1605].

The new legislation prohibiting the use of meat and bone meal in nutrition of animals for slaughter caused a huge problem as regards their management. The warehouses of rendering plants were quickly filled. The consequence of this was a significant increase in prices of utilization of by-products of animal origin. Therefore, there was also a significant risk to the environment because it often happened that this type of waste was delivered to landfills and not to specialized rendering plants.

Rules on the disposal of by-products of the meat industry are currently governed by the Regulation of the European Parliament and of the European Council (EC) of 21.10.2009 [Dz. Urz. UE, L 300/1], laying down health rules concerning animal by-products not intended for human consumption and repealing EC Regulation 1774/2002.

Inedible animal waste constitutes a potentially serious threat to the health of humans and animals. The mismanagement of waste with such a high microbiological contamination could affect the safety of the food chain. Therefore, any entity that produces animal waste is obliged to dispose of it in a specially adapted plant. In Poland there are currently dozens of entities handling all kinds of products of animal origin. One of the leaders in the rendering is the Struga S.A. company. The company operates a rendering plant located in the village of Jezuicka Struga in the area of the Rojewo municipality (the Kujawsko-Pomorskie province).

The Struga S.A. company also faced the problem of managing thousands of tons of meat and bone meal. The company solved this problem by implementing an innovative model of managing animal waste.

Flour and fat resulting from the process of combustion of animal waste are used in the following step which is the production of electricity. It takes place in a power plant located next to the main plant. The installation used in the power plant is equipped with a special chamber to which meat and bone meal are supplied directly. At approximately 1000°C the supplied meal undergoes a thermal transformation and gasification. The resulting gases are not immediately burned but are forwarded to the actual combustion chamber where by means of a flame fuelled with fat (product of the first step) these gases are incinerated. The heat produced from combustion is then used to produce steam, which further feeds a turbine connected to a generator producing electricity. Energy produced in this way is supplied to the external power grid.

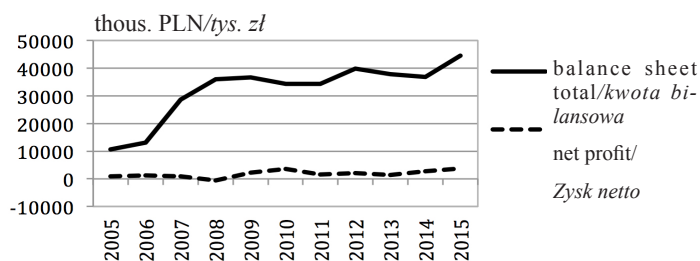
### Selected financial ratios in the Struga S.A. company

The investment that enabled the Struga S.A. company to manage waste was made in the years 2007-2008. With a view to implementing the investment, external capital was obtained in a form of bank loans and EU funds. As a result of the investment, the company's assets increased significantly. The balance sheet total increased in 2015 by 241%, when compared to the year preceding the investment, *i.e.* 2006 (fig. 1).

Figure 1. The balance sheet total and net profit of the Struga S.A. company

*Rysunek 1. Suma bilansowa i wynik finansowy netto spółki Struga S. A.*

Source: Financial statements of the Struga S.A. company  
Źródło: Sprawozdania finansowe spółki Struga S. A.

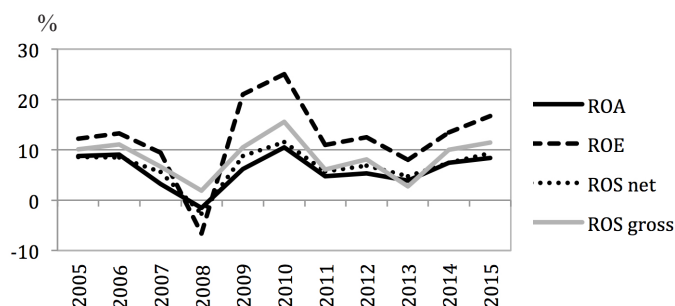


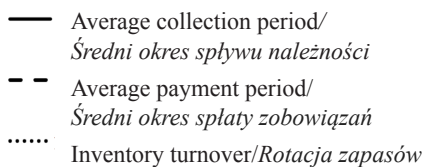
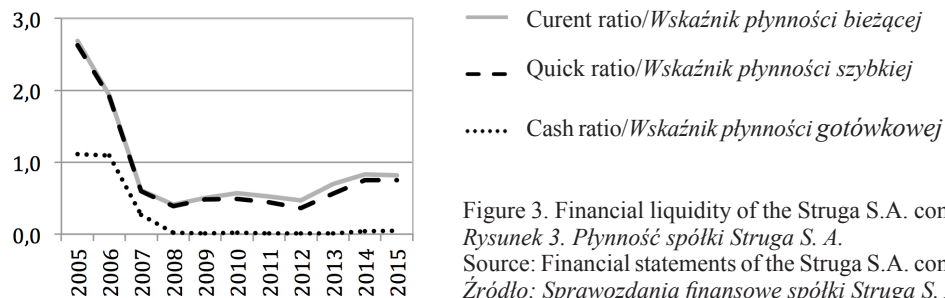
The effects of the investments made could be already seen in 2009, when the company created a financial surplus and increased its return on assets, equity, net and gross sales (see: fig. 2). In the final period of the conducted analysis (2015), the ROA ratio indicating the profitability of total assets amounted to 8.4%, while ROE indicating the profitability of invested equity was 16.8%. It should also be noted that all profitability ratios exhibited an upward trend in the last three years of the period.

Figure 2. Profitability of the Struga S.A. company

*Rysunek 2. Rentowność spółki Struga S. A.*

Source: Financial statements of the Struga S.A. company  
Źródło: Sprawozdania finansowe spółki Struga S. A.





Although the company's financial liquidity indicators after 2008 remained at levels which were lower than the reference ones, they were safe and were assumed in the adopted strategy (fig. 3).

The investments made enabled the company to maintain a cycle of inventory turnover at a low level, which is especially important due to the nature of the industry. As regards the company's receivables, it should be noted that the company was obtaining them in a period of less than two months, and the company paid its financial obligations usually within one month (fig. 4).

## Conclusions

The concept of sustainable development should be implemented by individual entities which can contribute both to environmental protection and to the improvement of living conditions of the population. The implementation of new ecological projects in companies leads not only to the improvement of the quality of life of the local community, but also often increases the number of jobs. One of the most significant issues from the business point of view, however, is to improve a company's financial performance. It ensures the maintenance of the market and earning a financial surplus necessary for the further development of the company.

This article presents the financial results of an ecological investment made by the Struga S.A. company in the years 2008-2009. The company under examination by way of modifying its manufacturing technology, which in its essence was the innovation process, has reached a stable level of liquidity, increased profitability and strengthened its competitive position in the market, becoming, in effect, one of the leading companies in the rendering industry in Poland.

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## Streszczenie

Celem artykułu jest zaprezentowanie przykładu wprowadzenia innowacji o charakterze ekologicznym przez polskie przedsiębiorstwo działające w przemyśle utylizacyjnym. Inwestycja ta spowodowała nie tylko zagospodarowanie znacznych ilości odpadów, ale umożliwiła także ich ponowne wykorzystanie, przyczyniając się tym samym do ochrony środowiska naturalnego. Nie jest to jednak jedyny efekt przeprowadzonych inwestycji. Udoskonalony, innowacyjny proces produkcji pozwolił przedsiębiorstwu poprawić sytuację finansową oraz w konsekwencji osiągnąć pozycję jednego z liderów w przemyśle utylizacyjnym w Polsce. Metodami badawczymi były metoda opisowa, analiza przypadku, metoda wywiadu osobistego oraz analiza wskaźnikowa sprawozdań finansowych badanej firmy. Wykorzystano dane i materiały udostępnione przez przedsiębiorstwo.

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