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Functioning of the Eco-Management and Audit Scheme (EMAS) on the example of a Częstochowa Municipal Company

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ABSTRACT

The subject of consideration of the following study is the Eco-Management and Audit Scheme, as a tool for managing a company focused on sustainable development. EMAS is an element of the management system in waste management companies, which is in response to the guidelines and regulations of the European Union. The following considerations are devoted to the functioning of the EMAS system at the Częstochowa Municipal Company, and the analysis of the environmental performance of the enterprise as a waste management company focused on achieving economic, ecological and social goals.

Keywords: Eco-Management and Audit Scheme (EMAS), Częstochowa Municipal Company, sustainable development, environmental management

1. INTRODUCTION

In order to counteract the deterioration of the natural environment, enterprises undertake actions aiming at the integration of economic relations with ecological and social ones. They introduce elements of sustainable development into their management system in order to implement legal and environmental requirements [1]. Enterprises have become organizations

that, in pursuit of economic goals, also take into account social and ecological needs. The new market conditions oblige them to implement systemic solutions in management, combining effective economic activity with the need to protect the environment, taking into account social needs [2]. As a result, the use of various formalized management systems is becoming more and more common [1]. The application of the concept of sustainable development or environmental management system gains in importance. These activities manifest themselves in integrating socio-economic life and reducing development disparities, they are to ensure future generations without fear of threatening the degradation of natural resources and ecosystems [3]. The concept of sustainable development was created as a response to the increased threat of an ecological crisis [4]. It is promoted by the European Union and requires the involvement of the state, society, and especially economic entities, especially contributing to the degradation of the environment. In connection with the above, these rules are implemented in various economic entities, including waste management companies, where it is particularly important to implement measures limiting the negative effects of waste on the environment [5]. Economic changes include the implementation of environmental policies that combine environmental management with technical environmental innovations and better economic performance. One of the most important instruments in this respect are the standards for environmental management systems, such as the EU Eco-Management and Audit System (EMAS) [6]. The principles of environmental management and sustainable development in waste management result in rejection of the concept of waste as a useless mass, for their comprehensive management, through their modification or recycling. Therefore, the reduction of waste inconvenience for the environment in waste management should be obligatory [7].

2. ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental management is a management focused on sustainable development. Sustainable development goals should be taken into account at the stage of planning and implementation of the environmental management system and selection of appropriate indicators for monitoring and evaluating the process [8]. Environmental management is understood as activities related to a separate part of reality related to the use, shaping and protection of the environment in the scale of a commune, region, state or in economic organizations. Management can be implemented in an indirect and direct way in all decision-making processes. Environmental management applies to both territorial units and business entities, and is closely related to the overall management system in the organization. The optimal functioning of the environmental management system enables the implementation of economic processes while minimizing the use of natural resources. The environmental management system is based on systematic activities aimed at continuous improvement of the organization, through planning, implementation of tasks, assessment of effectiveness, implementation of improvements and adaptation of the plan to new conditions [9].

In the case of environmental protection management, prophylaxis of activities is important as it is more cost-effective to prevent damage than to repair it. Therefore, voluntary pro-environmental activities, called the Environmental Management System, are implemented in enterprises striving for market success at the same time environmentally conscious. It is an organizational structure, procedures, processes, and resources for introducing environmental

management. Its purpose is to meet the requirements not resulting from the agreements concluded by the company, but from the applicable regulations or expectations and needs of the local and national community [10].

3. ECO-MANAGEMENT AND AUDIT SCHEME (EMAS)

International and national corporations around the world use environmental management systems (EMS) and certify them according to international standards. ISO 14001 is the dominant international standard for the assessment of environmental management processes, while in Europe many companies use the EMAS Eco-Management and Audit Scheme [11].

Environmental management procedures were the first to be developed in 1992 by the British Institute for Standardization in BS 7750 Environmental Management. The solutions used in this standard have significantly contributed to the shape of the European Union's Eco-Management and Audit System - EMAS. [10] The EMAS Regulation (Reg 761/01 EC) is an EU program implemented by the European Commission since 1993, it aims to implement an environmental management system by any organization. [12] The Environmental Management System prevents the intervention of the authorities dealing with environmental protection, reducing fees for the use of the environment and building social trust towards the company. In organizations focused on achieving economic benefits, environmental management is implemented through the use of EMAS or ISO14001 standards. The EMAS system is also used in waste management companies as a response to the guidelines and regulations introduced with the accession to the European Union. [13] The European Union's policy is to a large extent shaping the sustainable management of municipal waste, based on the experience of highly developed European countries. [14]

EMAS is promoted as an environmental protection instrument, acting on the basis of Regulation (EC) No. 1221/2009 on the voluntary participation of organizations in the Community eco-management and audit scheme. [15] It is referred to as the highest standard of environmental management, it allows enterprises to achieve economic goals in an environmentally responsible manner, that is, effectively, economically and ecologically. The EMAS system has recently gained in importance, especially in the waste management industry, due to the fact that it meets the main needs of enterprises that manage them. It helps to organize the company's responsibilities in the area of environmental protection and to implement the guidelines set out in the regulations.

Thanks to effective resource management, it generates savings, which are particularly important when implementing changes that take place in the Polish waste management system. EMAS is also a tool for shaping a positive image of the company as an environmentally conscious. Therefore, the implementation of EMAS is important from the point of view of the organization from the waste management sector. The main objective of the EMAS system as part of the action plan for sustainable development is to systematically improve the environmental performance of the organization by establishing and implementing environmental management systems, regular and objective assessment of system performance, information on environmental performance, communication with the public and stakeholders, and commitment and training of employees. [15]

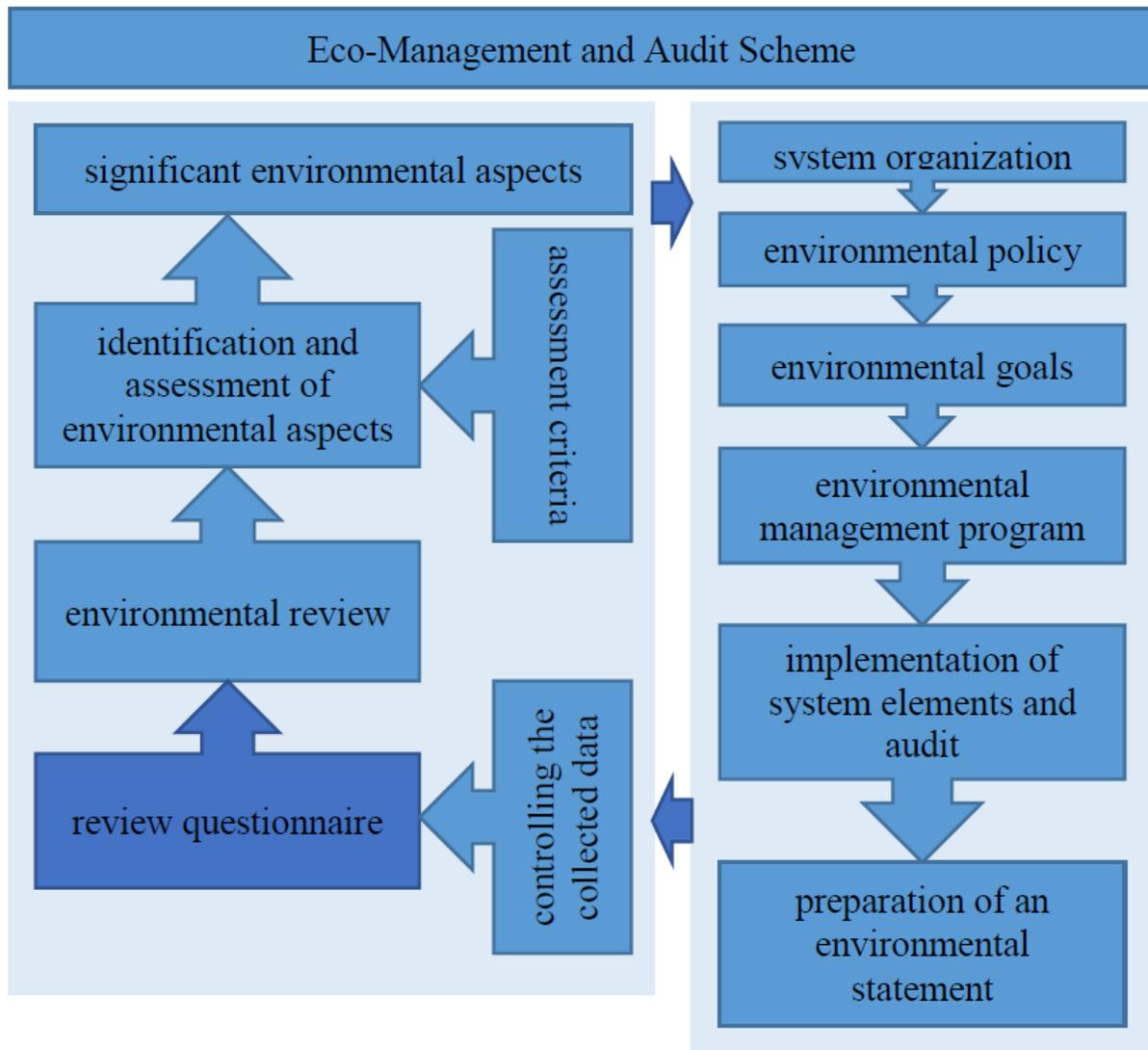


Figure 1. Actions leading to the implementation of EMAS

In Poland, the EMAS system operates on the basis of Regulation No. 1221/2009 of 25 November 2009 on the voluntary participation of organizations in the Community eco-management and audit scheme (EMAS) and Commission Decisions 2001/681/EC and 2006/193 / EC. The regulation obliged Poland to change the national regulations regarding the EMAS system, therefore, from September 29, 2011, the Act on the national eco-management and audit scheme EMAS of July 15, 2011 simplifying the organizational structure of the eco-management and audit system in Poland. The EMAS system in Poland is based on the organizational structure, which consists of: Minister competent for environmental matters, General Director of Environmental Protection, Polish Center for Accreditation. [16]

Organizations wishing to enter the EMAS system and register in it should meet a number of requirements. Activities leading to the implementation of EMAS are presented in Figure 1.

Implementation of the system is an investment for enterprises that brings measurable benefits. The introduction of the system requires the organization to analyze all elements of the activity in order to identify the areas that have the greatest impact on the environment. All components of products and services are taken into account, as well as relationships with external entities. Thanks to the analyzes carried out, enterprises can learn about strengths and weaknesses of business from the perspective of the impact on the environment, and in areas with significant impact, eco-management procedures are implemented [17].

When implementing an environmental management system, organizations must define a procedure for identifying and assessing environmental aspects. EMAS does not define a specific methodology to perform this task. Accordingly, organizations can choose or develop a method that better suits their activities, needs and structure. [18] The main assumption of EMAS is to pay attention to minimizing the harmful effects on the environment by taking measures to prevent the formation of pollution. This applies to both direct activities within the company as well as indirect impact related to cooperation with other entities. [19] In the EMAS system, it is essential to properly allocate resources, competencies and employee awareness and commitment in line with the company's objectives. EMAS actions to improve results are based on the Deming cycle, i.e. plan, do, check and act. [20] The stages of implementing the EMAS system are presented in Figure 2.

Obtaining EMAS registration does not guarantee that the organization achieves an excellent level of ecological efficiency, rather it demonstrates that organizations are committed to ensuring continuous improvement of environmental protection. [21]

The implementation and operation of an environmental management system in an enterprise brings many benefits that are not of a financial nature. [22] Apart from the general reduction of the organization's adverse environmental impact, such benefits may include reducing the frequency of environmental inspections by public administration bodies and mitigating the forms of supervision, or possible negative consequences of their implementation. [23] Implementation of the EMAS system may bring many other positive effects eg: [24]

- rationalization of consumption of raw materials, water and energy,
- reduction of costs through the use of recycling,
- improving relations with local authorities, enabling obtaining public subsidies and reducing administrative burdens,
- improving the image as a company that cares about the environment,
- increase in market share and entry into new sales markets, due to the increase of interest in proecological products by customers,
- increase in the market value of the enterprise,
- having a modern management system that determines the proper functioning of the organization,
- improving the quality of products and services as a result of detailed analyzes and controls carried out under EMAS,
- technological development of the organization, as a result of the need to improve the environmental performance,
- improving cooperation with financial and insurance institutions, due to the improvement of credibility as a result of the implementation of EMAS,
- improving employee involvement,

- improving the quality of life of the society,
- meeting the principles of sustainable development.

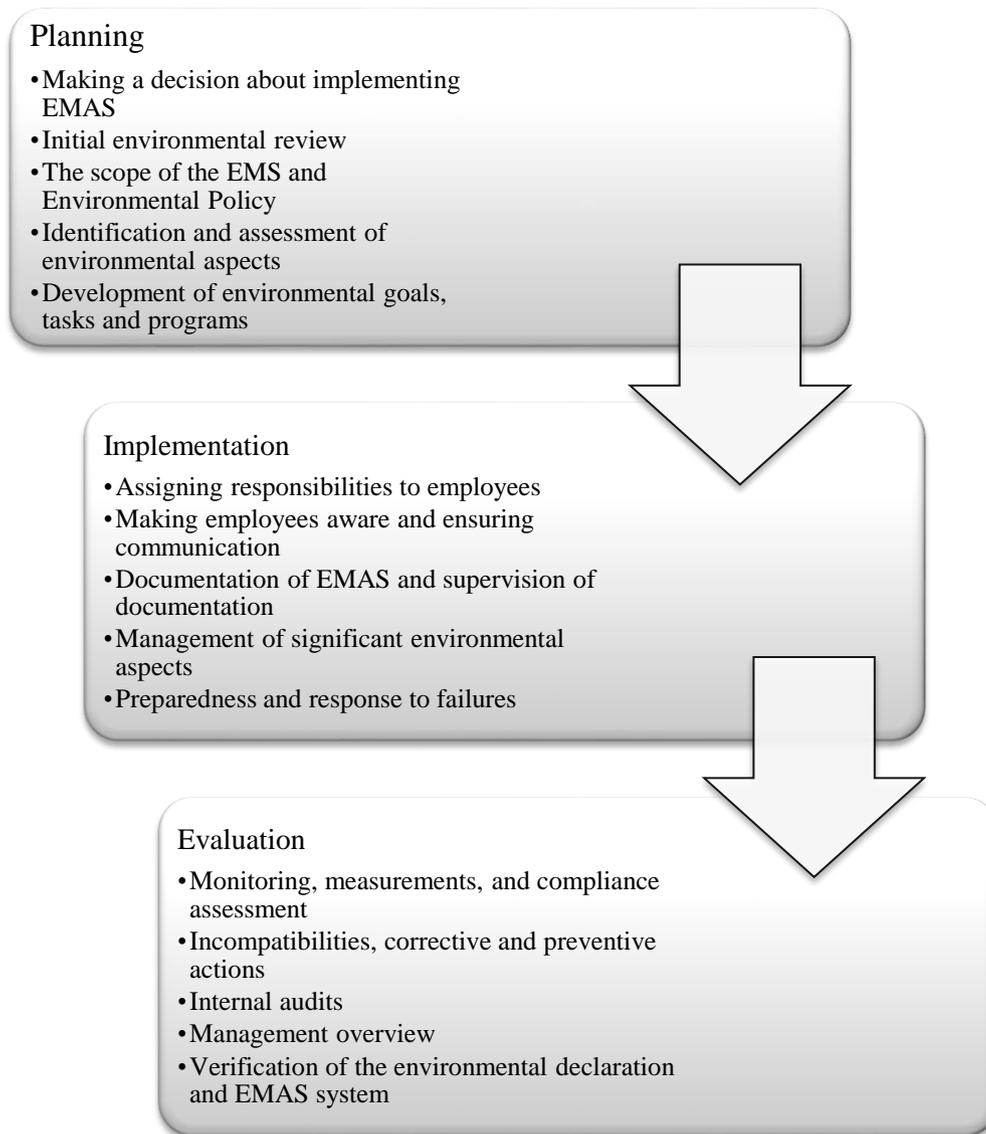


Figure 2. Stages of implementing the EMAS system.

The implementation of the EMAS system with ecological effects brings a number of economic effects, due to the compliance with the legal system of environmental protection, improvement of product quality, reduction of costs resulting from more optimal use of resources. The EMAS system also affects local society due to the increase of employees' involvement in pro-ecological activities, as well as the improvement of the company's image and the growing interest in environmental products [25].

4. ECO-MANAGEMENT AND AUDIT SCHEME (EMAS) IN CZĘSTOCHOWA MUNICIPAL COMPANY

Częstochowa Municipal Company Ltd. (CzPK) based in Sobuczyn is a municipal company with 100% share of the City of Częstochowa. It operates on the basis of the provisions of the Act of 15 September 2000, the Code of Commercial Companies, the provisions of the Act of December 20, 1996 on municipal services and the provisions of the Act of Transformation of the Budgetary Department into a limited liability company. The management system in the company is based on the implemented and certified Integrated ISO Management System in the field of quality, environment and health and safety as well as the EMAS environmental management system. This means that all environmental aspects have been defined in the company and procedures for controlling them have been introduced. As a result, the potential for negative environmental impacts has been minimized. The subject of activity of the Częstochowa Przedsiębiorstwo Komunalnego is waste management in the scope of: collection, collection, transport, disposal by landfilling, recovery and recycling, recovery and management as well as management of the waste management system.

The company in the field of municipal waste management operates in the area of the region of the Silesian Voivodship comprising the following poviats: Częstochowa, Kłobucki, Mszkowski, Lubliniec and Zawiercie, as well as cities with powiat rights located in this area. The company also deals with maintaining order in urban areas as part of the commissioned own tasks of the Częstochowa commune. CzPK performs duties resulting from the own tasks of the Częstochowa Commune in the field of municipal waste management on the basis of the amended Act on maintaining cleanliness and order in communes, which as the municipality's own task imposes the maintenance of cleanliness and order in its area. These tasks have been included in the coherent and integrated system functioning in the commune. It enables effective management of municipal waste, ensuring the achievement of the required levels of recycling, preparation for re-use and recovery by other methods, and reducing the mass of biodegradable municipal waste transferred to landfilling. The tasks of CzPK also include the development of real estates owned by the Company. The company also undertakes activities within the framework of investments necessary to meet legal requirements related to waste management and investments related to commissioned own tasks of the Częstochowa commune.

The Częstochowa Municipal Company has been conducting environmental policy for many years, increasing legal requirements in the field of environmental protection is fulfilled by constant modernization of the technical base, modification of techniques of waste disposal processes, and by means of advanced technological solutions.

An important element of the company's environmental policy is the improvement of management and work organization processes, therefore an environmental management system has been introduced. This system is constantly modified, and the directions of changes are set by the Environmental Standard ISO 14001 and the EMAS Regulation, and its main goal is to improve ways of reducing environmental impacts. The system operates in areas such as collection, disposal, recovery and waste management. The Environmental Management System in CzPK since 2009 has been extended to include elements of the EMAS Regulation, which proves a high level of environmental activity in line with the requirements of the European Union.



Figure 3. Goals of the Environmental Management System in CzPK Ltd.

The environmental management system functioning in the enterprise consists of environmental policy, which coincides with the policy of the Integrated Management System and sets out the most important goals and principles of activity in the field of environmental protection. The policy of the Integrated Management System and EMAS in Częstochowa Municipal Enterprise manifests itself in its mission, which is conducting activities in the field of neutralizing non-hazardous and inert waste by sorting, composting and storing, as well as recycling at the demolition station of large-size waste and demolition station as well as collecting waste from the city and commune and managing waste in a safe, economical, ecologically clean and at economically justified prices.

Obligations of Częstochowa Municipal Company as part of the Environmental Management System are presented in Figure 3.

Under the EMAS Regulation, the company prepares an environmental statement, which is an expression of concern for good contacts with the environment, and proof of meeting the requirements of the EMAS Regulation. The main purpose of the declaration is to provide external entities with information about the company's impact on the environment, the effects of environmental protection management and the process of continuous improvement of this management.

Objectives and tasks related to environmental protection are planned based on:

- current and future needs and requirements of residents in the field of waste management,
- legal requirements and decisions related to disposal activities and processes through appropriate waste management and limiting their impact on the environment and human health,
- comments submitted to entities related to the activities of the CzPK
- results from the control and measurement of waste disposal services and related processes,
- implementation of Waste Management Plans,
- direct and indirect environmental aspects.

The company operates a procedure for identifying and assessing the significance of environmental aspects, specifies in detail the rules for determining the indirect and direct environmental aspects present in the enterprise and determines which of them have a significant impact on the company's operations and which are properly monitored.

CzPK Ltd. distinguishes the criteria that constitute the basis for recognizing the aspect as significant, these are:

- emission, quantitative and qualitative thresholds included in integrated permits or other decisions,
- legal requirements,
- the cost of managing a given aspect,
- possible failures and dangerous situations that could pose a significant threat to the environment.

Environmental aspects are included in various activities, including:

- normal work,
- investment activities,

- closing the storage area and sending it to the reclamation process.
- accidents and dangerous situations that have or may have an impact on the environment.

All environmental aspects identified as significant are monitored in accordance with EMAS requirements and are the basis for improvement of the environmental management system. The list of significant direct and indirect environmental aspects is periodically updated and made available. In Częstochowa Municipal Company, operations and operations concerning significant environmental aspects are precisely defined. They have been planned in a way that ensures their proper functioning in the established conditions. The established and documented procedure describes the rules for defining and elaborating operational control elements with significant environmental aspects. It clarifies the manner of verification and updating of documentation to control significant environmental aspects and defines priority operational criteria for these aspects. CzPK Ltd. creates, implements, applies and updates documentation of the environmental management system in accordance with the requirements of the EMAS Regulation. As part of the implementation of environmental management rules based on the EMAS Regulation, employees are trained in the company, raising the awareness of personnel in the field of environmental protection. The rules for organizing, conducting, documenting and evaluating the trainings were defined. As a result of these activities, employees of the CzPK have the appropriate competencies needed to perform the assigned work. An important role in the proper implementation and operation of the EMAS system is played by internal and external communication.

Table 1. Elements of external and internal communication in the company.

Elements and tools	
External communication	Internal communication
exchange of information and documents with public administration bodies, EMAS Verifiers and other interested parties (Environmental Declaration),	circulation of system documentation within the internal data transmission system,
publication of information and information and advertising materials	exchange of information by electronic means between organizational units,
running a website	publication of information and training materials for organizational units
publication of information and conference materials, training, conducting seminars	complicity of employees in the implementation of environmental tasks,
ecological education	registration of complaints, requests and inquiries and providing answers
	meetings of organizational units, exchange of insights and problems

In the enterprise, in order to conduct proper supervision over the documentation, procedures were established regarding the principles of development, accessibility, supervision and updating of documentation. This also applies to records that prove the functioning of the environmental management system, rules for their creation, identification, collection, marking and storage.

The company also has a procedure to identify potential failures that could have a significant impact on the environment, specifying the conditions in which plans and instructions for the conduct should be developed to identify an emergency.

As part of EMAS, a system for monitoring environmental impacts and assessing operations in accordance with legal requirements and environmental protection is applied in CzPK. The results of environmental impact control, data for the calculation of emissions and quantities of production waste are used to calculate fees for the economic use of the environment, record the quantity and quality of pollution and assess compliance with legal requirements for environmental protection. However, the correctness of the functioning of the environmental management system in the enterprise is confirmed by internal audits. They are carried out by a competent group of auditors based on the procedure of preparing and conducting internal audits in accordance with the annual schedule. The audit procedure also determines how to deal with detected observations and nonconformities. The company also has a procedure for non-compliance as well as corrective and preventive actions, according to which employees are required to report non-compliances, also regarding environmental protection. For the proper functioning of the system, a review performed by management is carried out, consisting in documenting the effectiveness of the environmental management system, its effects, measuring the effectiveness and size of environmental indicators to confirm compliance with legal requirements and objectives of the company.

5. CONCLUSIONS

Environmental protection is an important element of management, therefore it is necessary to apply the principles of sustainable development. Enterprises should strive to increase economic benefits with the assumption of improving the quality of life of the society and maintaining ecological balance. There is a need for waste management not to cause damage to the environment, and therefore it is necessary to save resources. These rules in waste management result in rejection of the concept of waste as a useless mass, for their comprehensive management. It obliges enterprises to implement systemic management solutions that combine effective economic activity with the need to protect the environment, taking into account social needs.

The environmental management system is an organizational structure, procedures, processes and resources for introducing environmental management. Its purpose is to meet the requirements not resulting from the agreements concluded by the company, but from the applicable regulations or expectations and needs of the local and national community. In organizations focused on achieving economic benefits, environmental management is implemented through the use of the EMAS eco-management and audit system. The EMAS system is also used in waste management companies as a response to the guidelines and regulations introduced with the accession to the European Union. It helps to organize the company's responsibilities in the area of environmental protection and to implement the

guidelines set out in the regulations. Thanks to effective resource management, it generates savings, which are particularly important when implementing changes that take place in the Polish waste management system. The main objective of the EMAS system as part of the action plan for sustainable development is to systematically improve the environmental performance of the organization by establishing and implementing environmental management systems, regular and objective assessment of system performance, information on environmental performance, communication with the public and stakeholders, and commitment and training of employees.

For many years, Częstochowa Municipal Company has been pursuing an environmental policy, increasing legal requirements in the field of environmental protection is fulfilled by constant modernization of the technical base, modification of techniques of waste disposal processes and advanced technological solutions. The management system at CzPK is based on the implemented and certified Integrated ISO Management System in the field of quality, environment and health and safety as well as the EMAS environmental management system. This means that all environmental aspects have been defined in the company and procedures for controlling them have been introduced. Under the EMAS Regulation, the company prepares an environmental statement, which is an expression of concern for good contacts with the environment, and proof of meeting the requirements of the EMAS Regulation. The main purpose of the declaration is to provide external entities with information about the company's impact on the environment, the effects of environmental protection management and the process of continuous improvement of this management. Activity of CzPK Ltd. affects various environmental elements. The environmental statement prepared by the company under the EMAS Regulation describes the basic impacts and measures the size of environmental aspects. Therefore, it can be concluded that CzPK Ltd. conducts its business in an efficient and ecologically conscious manner.

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