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EMAS, A PREMIUM TOOL FOR ENVIRONMENTAL MANAGEMENT AND AUDIT IN SLOVAK REPUBLIC

EMAS AKO PRÉMIOVÝ NÁSTROJ ENVIRONMENTÁLNEHO MANAŽÉRSTVA A AUDITU V SLOVENSKEJ REPUBLIKE

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ABSTRACT

The Environmental Management and Audit Scheme (EMAS) is a voluntary tool of the European Union created for an organization to help assess, in particular and improve their environmental performance. In the face of increasing environmental responsibility from the market and customers, organizations benefit from reducing the negative environmental impacts resulting from their activities. Excellent environmental performance is essential for a commercial guarantee, while environmental performance becomes a disadvantage. As environmental problems are complex and growing in number, they must be driven by new requirements. In this paper, we want to highlight the benefits resulting from the introduction of an environmental management system in the Slovak Republic. The implementation of the system not only leads to environmental protection, but environmental verifiers also record other positive impacts not only from an environmental point of view, also from a social point of view.

KEY WORDS

environmental management and audit, EMAS, EMS, environmental policy tool

JEL – CLASSIFICATION: *L23, M11, M42, P48, Q56*

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1 Introduction

We have lived on Earth for thousands of years, but it was only in the last centuries that we began to significantly influence the environment through our activities. Over time, the unlimited needs of mankind are met with limited natural resources. Conflict is created because there are situations where nature cannot regenerate as quickly as a person devastates it.

Studies of the current state of the environment are alarming and warn us of natural disasters. We can conclude that man is actively or passively involved in the destruction of nature. Through industrial production, emissions are released into the air, which results in an increase in the ozone hole, acid rain, global warming, which will cause an increase in the overall level of the world's oceans, the probable drying up of the Amazon rainforest, the largest source of oxygen production, and various other climate changes. Mass production of products of a consumer nature leaves behind a lot of waste, and the question is how much waste the Earth can handle if it is not held for the benefit of nature and therefore of humans, they are an integral part of it.

The above problems are only a small display of the importance of environmental protection on a global scale. Not only man himself, but also manufacturing companies began to realize the

importance and importance of their next steps towards environmental protection. Therefore, systems are desirable that allow them to manage their relationship with the environment, mostly to act preventively. One of the helpful forms is environmental management (EMS) as a company management system in relation to environmental protection and is based on a range of ISO 14000 standards and the Environmental Management and Audit Scheme (EMAS) is the most trusted and powerful tool on the market for environmental management systems. EMS and EMAS are in favour of managing the relationship with the environment, but also because of the establishment of order in the organization, various financial advantages such as cost savings, competitive benefits due to the increase in the company's image, market share or legislative advantages, incentivise employees and increase their enthusiasm.

In this paper, we want to highlight the benefits resulting from the introduction of an environmental management system for those responsible. The implementation of the system not only leads to environmental protection, but environmental verifiers also record other positive impacts not only from an environmental point of view, also from a social point of view.

2 Current State of the Solved Problem at Home and Abroad

Nowadays, which is set to continue economic growth and a highly consumerist way of life for society, when demand is creating additional demand, we are increasingly starting to look at the question of what to do and how to proceed so that we can leave our society in the best possible condition for future generations and how to put the environment at least risk.

2.1 Environmental Issues

Economics, the everyday practical subject and discipline of our lives, was described in the study "*Economics for Collaborative Environmental Management: Renegotiating the Commons*" (Marshall, 2005), how and why individuals, groups and organizations decide on the use and distribution of valuable human and inhumane resources. On the other hand, the environment includes all living and inanimate things and their interactions. The environment is a platform for all human activities. Human activities in turn affect the environment and the environment in turn affects humans. Thus, man and his environment are thus dialectically connected. It is therefore not surprising that the quality of the environment has become a major concern of the public and the world.

2.2 Environmental Concept

New concepts, such as the circular economy, sustainable lifestyles and investment in renewable energy, are becoming more important for improving economic efficiency and the quality of the environment, which requires basic research. Rizos, etc. (2017) define sustainable lifestyles as a way of life with a lower environmental impact, attempting to limit resource use and increase the sustainability of the planet, where a low-animal protein diet is preferred to reduce environmental pressure from animal production and promotes to consumers green energy produced from non-fossil fuels in order to replace traditional fossil fuel energy. We know that changing lifestyles is not easy, it provides great opportunities for the sustainable use of our resources in the world.

The legislation of the Slovak Republic according to Act No. 17/1992 defines the environment as: "*everything that creates natural conditions of existence of organisms, including humans, and is a prerequisite for their further development. Its components are mainly air, water, rocks, soil, organisms, ecosystems and energy*."

Environmental impact assessment is governed by Act no. 24/2006 Coll. The National Council of the Slovak Republic of 14 December 2005 on Environmental Impact Assessment and on Amendments to Certain Acts, as amended.

A more detailed description is given by Evangelinos and Halkos (2002) in the paper "*Implementation of environmental management systems standards: important factors in corporate decision making*", that in environmental management the environment is the environment in which the organization carries out its activities including air, water, soil, natural resources, plants, animals, humans and their interrelationships. Environment and the environment are equivalents, where the environment replaces in the literature adjectives formed from the word environment and is also taken from the English translation of ISO 14000 standards.

2.3 Government Intervention in the Allocation of the Environment

The environment is an essential component of the whole economy in the country. Its protection is often perceived as problematic and discussions about environmental protection are sometimes influenced by several interest groups, and as a starting point there must be a comprehensive system of state environmental policy. Environmental protection policies are mostly targeted according to political preferences or current sub-issues. The individual states responded to the need to protect the environment for themselves and together. The reason for state intervention is to complement the market mechanism, as nature protection is in the public interest and no one can be excluded from use. The state deals with the environment:

- threats to global biosphere systems,
- reducing biodiversity,
- degradation of natural resources, and
- a direct threat to human health.

The information portal of the Ministry of the Environment of the Slovak Republic states that the *Environmental Impact Assessment* (EIA) is considered to be one of the main tools of international environmental policy for the implementation of sustainable development. In order to ensure full harmonization of Slovak legislation in the field of environmental impact assessment with the law of the European Union, Act no. 391/2000 Coll., Which amends the Act of the National Council of the Slovak Republic no. 127/1994 Coll. on environmental impact assessment. It regulates a comprehensive assessment of environmental impacts, assessment of strategic documents and assessment of the impact of buildings, equipment and other activities on the environment.

2.3.1 State Environmental Policy

The Ministry of the Environment of the Slovak Republic (1993) lists five priorities in the "*Strategy, Principles and Priorities of the State Environmental Policy*", the choice of which considered not only the initial situation of the Slovak Republic but also international comparability with Canada.

The strategy of the environmental policy of the Slovak Republic has the following priorities:

1. protection of the air against pollutants and dangerous substances;
2. ensuring sufficient drinking water and eliminating pollution of other waters below the permissible limit;
3. protecting soil from degradation and ensuring the safety of food and products;
4. waste reduction and proper recycling;
5. conservation of biological diversity of living organisms, efficient and economical use of natural resources and optimization of the spatial structure of the landscape.

2.3.2 Voluntary Approaches to Environmental Protection

The availability of high-quality and reliable information on the environment is one of the basic preconditions for evaluating the effectiveness of adopted regulations and documents on environmental care. Their systematic evaluation and access is one of the basic tasks of the Slovak Environment Agency (SAŽP). SAŽP directs many of its outputs towards the public and thus tries to influence the population and support their interest and positive attitude towards the protection and creation of the environment. Responsible bodies also conclude that they can make a significant contribution to mitigating adverse environmental impacts. The Ministry of the Environment of the Slovak Republic has set aside voluntary measures in the area of *Environmental Management*, by which the state seeks to increase the emphasis on a responsible approach to environmental protection. These measures include:

- The National Program for Environmental Assessment and Labeling of Products, through the National Environmental Labeling Scheme of the Ministry of the Environment of the Slovak Republic, awards the national environmental label "*Environmentally Friendly Product*" to products and services that meet strict environmental criteria;
- Clean production is the constant application of an integrated preventive environmental protection strategy to processes, products and services in order to increase their efficiency and reduce risks to humans and the environment;
- Environmental systems EMAS and ISO 14 001 with the common goal – to ensure good environmental management. Nevertheless, they are too often considered competitors. Since 2009, the European Commission has recognized that ISO 14001 can serve as a steppingstone for the EMAS scheme;
- Voluntary agreements between the state administration and production associations in order to use more environmentally friendly technology and practices.

2.4 Environmental Policy Instruments

The fundamental question for sustaining life on Earth is how to ensure sustainable development in the context of maintaining economic growth and prosperity on a global scale. With this idea comes a new economic model of the European Union called "*The circular economy*". Adamkovičová (2016) from Slovak Environment Agency claims that its goal is to support the development of a low-carbon economy that uses resources efficiently by preserving the value of products, materials and resources in the economy for as long as possible. The new approach will require analysis and reassessment of existing production and consumption patterns, with a view to their sustainability and energy efficiency, where new technologies and eco-innovations play an important role.

According to the decision of the European Parliament and the Council no. 1639/2006/EC of 24 October 2006 establishing a Competitiveness and Innovation Framework Program, eco-innovation is any form of innovation aiming at significant and demonstrable progress towards sustainable development. The development and implementation of eco-innovations is also supported by voluntary environmental policy instruments, which aim to reduce the negative impacts of organizations' activities on the environment, while they are implemented on the basis of their voluntary decision and go beyond the requirements of applicable legislation. The use of their potential is supported by European environmental policy with documents of a strategic nature, such as – Europe 2020 Strategy, Eco-Innovation Action Plan, Agenda 2030 and the Circular Economy Action Plan. Voluntary instruments with an eco-innovative dimension include: environmental management and audit (EMAS), environmental product labeling, green public procurement (GPP) and environmental technology verification.

2.5 Environmental Management Systems

Environmental Management Systems (EMS) have undergone dynamic development and in terms of rapidly growing and increasing requirements, demands, trends and strategies for environmental protection are still a current topic on a global scale according to the authors Dubravská et al. (2020) paper "*Corporate Social Responsibility and Environmental Management Linkage: An Empirical Analysis of the Slovak*". Based on the analysis of the development and current state of implementation of environmental management systems, respectively. Schemes of environmental management and audits (EMAS), formalized according to ISO 14 001, as well as less formal tools for improving environmental behavior, are in Annex II: Developments in environmental management, indicating possible developments in environmental management. Emphasis is placed on the outcome of the process of convergence of EMS and EMAS and their integration into the integrated management systems of organizations, as well as on their support and continuous improvement through the use of specific less formal environmental management tools, especially in small and medium-sized enterprises. Frysinger (2012) states that, compared to ISO 14,000 standards, EMAS does not cover the area of environmental labeling, which is addressed by separate regulations, or product life cycle assessment (LCA). It deals in more detail with the participation of employees in the process of continuous improvement of environmental behavior, the identification of environmental impacts and the possibilities of using the EMAS logo (Table 1).

Table 1
Difference between ISO/EN ISO 14001 and EMAS

	EMAS	**ISO/EN ISO 14001**
Preliminary environmental review	Verified initial review	No review
External communication and verification	Environmental policy, objectives, environmental management system and details of organisation's performance made public	Environmental policy made public
Audits	Frequency and methodology of audits of the environmental management system and of environmental performance	Audits of the environmental management system (frequency or methodology not specified)
Contractors and suppliers	Required influence over contractors and suppliers	Relevant procedures are communicated to contractors and suppliers
Commitments and requirements	Employee involvement, continuous improvement of environmental performance and compliance with environmental legislation	Commitment of continual improvement of the environmental management system rather than a demonstration of continual improvement of environmental performance

Source: *MAJERNÍK, M. – CHOVANCOVÁ, J. Systems, Forms and Tools of Environmental Management in Small and Medium Enterprises. Život. Prostr., Vol. 42, No. 3, p. 115–124, 2008.*

3 Research Design

The aim of the paper is to analyze the position and importance of environmental management systems in the Slovak Republic. Based on the set goal, an analysis of accredited certification companies for EMS according to ISO 14001 was performed and a list of registered entities in EMAS in Slovakia was prepared. The database of the Slovak National Accreditation Service

and the EMAS Register were used for secondary data and the database basis for searching for subjects.

We also used the regulation from Ministry of the Environment of the Slovak Republic called *Strategy, principles and priorities of state environmental policy (1993)*. Descriptive statistics methods and graphical display tools were used to process the results.

4 Results of the Paper and Discussion

4.1 Institutional Security of the EMS System in the Slovak Republic

A company that wants to be successful in the market among the competition is looking for different ways to achieve the set goals. According to Todaro et al. (2019), if a company includes in its objectives the prevention and minimization of negative effects on the environment, it will certainly be assisted by one of the environmental management systems, which seeks to find solutions to manage business activities so as not to cause environmental degradation. By purposefully improving processes, a company can contribute not only to a better environment, but also to reducing business costs, which will have a positive impact on its profits.

Barbu et al. (2016) argue that the environmental management system (EMS) according to ISO 14 001 is one of the important management tools. The EMS consists of a number of interconnected elements that allow the organization to analyze, control and reduce the negative environmental impacts of activities, products and services, as well as to manage the organization with greater efficiency and control. The emphasis is on a preventive approach and continuous improvement.

4.1.1 Accredited companies for EMS according to ISO 14001 in the Slovak Republic

ISO series standards are transferred to the STN system in the Slovak Republic by the national standardization body Slovak Institute of Technical Standardization. Impartial professional assessment and recognition of responsible entities in the verification of EMAS and certification of EMS systems is performed in the Slovak Republic by the Slovak National Accreditation Service. The list of entities that are accredited for the certification of environmental management systems according to ISO 14001 is shown in Table no. 2.

Table 2
Accredited certification companies for EMS according to ISO 14001 in the Slovak Republic

Registration Number	Name of the Accreditation Company	Headquarters	Date of Issue of the Certificate	Certificate Validity Date
R-001	LIGNOTESTING, a.s.	Bratislava	2.4.2020	2.4.2025
R-003	S K Q S, s.r.o.	Žilina	29.4.2019	8.5.2021
R-005	Technický a skúšobný ústav stavebný, n.o.	Bratislava	2.11.2020	2.11.2025
R-006	TÜV SÜD Slovakia s.r.o.	Bratislava	11.2.2020	11.2.2025
R-031	ACB, s.r.o.	Trenčín	14.5.2018	25.8.2021
R-033	PQM, s.r.o.	Banská Bystrica	16.7.2018	16.7.2023
R-042	Výskumný ústav zváračský	Bratislava	17.12.2018	17.12.2023
R-043	ECM Certification, s.r.o.	Komárno	15.11.2018	15.11.2023
R-047	GemerAudit, spol. s r.o.	Rožňava	21.5.2018	18.5.2021
R-049	SGS Slovakia spol. s r.o.	Košice	7.8.2019	2.5.2024
R-054	CVI, s.r.o.	Poprad	20.12.2019	20.12.2024
R-056	ELBACERT, akciová spoločnosť	Kremnica	13.11.2018	6.9.2023
R-060	QUALIFORM SLOVAKIA s.r.o.	Bratislava	1.4.2020	1.4.2025
R-064	3EC International a. s.	Bratislava	1.7.2020	1.7.2025
R-072	CERTY CEQ, s. r. o.	Pezinok	24.1.2019	28.9.2021

R-073	SMC Slovensko a. s.	Bratislava	15.11.2018	4.5.2021
R-081	ASTRAIA Certification, s.r.o.	Nitra	22.9.2020	22.9.2025
R-085	ISO QUALITYCERT s.r.o.	Nitra	12.10.2020	16.10.2024
R-095	ANCCP Certification Agency s.r.o.	Bratislava	2.4.2020	2.4.2025
R-117	TSÜ, a.s.	Púchov	21.2.2019	21.2.2024
R-119	ITQ- INŠTITÚT TEÓRIE KVALITY, s.r.o.	Žilina	13.3.2019	6.11.2022
R-122	CERT International, s. r. o.	Bratislava	15.8.2020	15.8.2025
R-126	SDMCERT s.r.o.	Bratislava	6.9.2019	6.9.2024
R-128	QSCert, spol. s r.o.	Zvolen	1.10.2020	1.10.2025

Source: *self-elaboration according to SNAS. Accredited certification companies for EMS, 2021*

4.2 Institutional Security of the EMAS System in the Slovak Republic

The Community eco-management and audit scheme (EMAS) is a way for a legal entity to proceed with the implementation of an environmental management system. EMAS entered into force in April 1995 on the basis of EC Council Regulation no. 1836/93 on the voluntary participation of industrial enterprises in the system of enterprise management and audit from the point of view of environmental protection and was intended primarily for enterprises in the field of industry. At present, this stage is referred to as EMAS I. The revision of the Regulation was carried out in 2001 by the EP and Council Regulation EC no. 761/2001 on the voluntary participation of organizations in an environmental management and audit scheme, referred to as EMAS II. For example, the extension of the scope from industry to all economic sectors, including services and public institutions, as well as the introduction of wider employee participation in the process of improving the company's impact on the environment, or the introduction of the program logo. A more detailed description is given by Morrow and Rondinelli (2002) in "*Adopting Corporate Environmental Management Systems: Motivations and Results of ISO 14001 and EMAS Certification*". The core of EMAS II was the ISO 14001 standard, and in 2009 this program was further amended, repealing and replacing it with EC and Council Regulation EC no. 1221/2009 on the voluntary participation of organizations in the so-called EMAS III scheme.

4.2.1 EMAS in the conditions of the Slovak Republic

EMAS was introduced in Slovakia by the first company in Slovakia to obtain a national EMAS registration with registration number 01/2001 Quelle Slovensko. The verification of the system in this case was performed by a foreign accredited environmental verifier from Intechnica, GmbH, Nuremberg (Daddi et al., 2017). Since the date of the first registration in Slovakia, the number of registered organizations in the EMAS scheme has been on the rise. We can state that since 2001, with the entry of the first company into the EMAS scheme register, we have so far formed a family of EMAS companies, which already has 38 members.

Table 3
Organizations registered in the EMAS Scheme based in the Slovak Republic

Registration Number	Name of the Organization	Number of Registered Places	Registration Date	Validity of Registration
SK-000006	SEWA, a. s.	1	01.11.2008	11.06.2023
SK-000010	ŽOS-EKO, s. r. o.	1	10.07.2015	26.08.2021*
SK-000012	EUROVIA SK, a. s.	9	11.12.2017	02.10.2023
SK-000014	STRABAG s. r. o.	14	16.10.2018	31.07.2021
SK-000015	Váhostav – SK, a. s.	3	01.07.2019	21.09.2022*
SK-000016	PORR s. r. o.	1	29.07.2019	24.06.2022
SK-000017	Skanska SK a. s.	8	21.08.2019	25.07.2022*

SK-000018	CED Consulting s. r. o.	1	11.09.2019	05.08.2022
SK-000019	AVA – stav s. r. o.	1	25.09.2019	26.08.2022
SK-000020	Ferrmont a. s.	2	28.02.2020	29.01.2023
SK-000021	Adifex a. s.	1	08.04.2020	18.02.2023
SK-000022	Doprastav a. s.	6	09.04.2020	13.02.2023
SK-000023	ARPROG, a. s. Poprad	1	26.05.2020	15.04.2023
SK-000024	EKOFORM spol. s r. o.	1	02.06.2020	06.05.2023
SK-000025	ESP Consult s. r. o.	1	01.07.2020	28.04.2023
SK-000026	IRBIS Slovakia s. r. o.	1	01.07.2020	28.04.2023
SK-000027	Chemkostav a. s.	1	07.07.2020	03.06.2023
SK-000028	COLAS Slovakia a. s.	18	10.08.2020	05.06.2023
SK-000029	BETPRES s. r. o.	1	17.08.2020	17.07.2023
SK-000030	AQUAMONT s. r. o.	1	09.09.2020	10.08.2023
SK-000031	Ing. Marián Sahul STAVEKO	1	10.09.2020	10.07.2023
SK-000032	VODOHOSPODÁRSKE STAVBY a. s.	3	15.10.2020	11.08.2023
SK-000033	DAG SLOVAKIA a. s.	2	23.10.2020	17.09.2023
SK-000034	SOAR SK a. s.	2	28.10.2020	03.09.2023
SK-000035	HAKOM s. r. o.	1	13.11.2020	22.10.2023
SK-000036	STRABAG Pozemné a inžinierske staviteľstvo s. r. o.	1	26.11.2020	26.10.2023
SK-000037	DYNAMIK CONSTRUCTION s. r. o.	1	03.12.2020	21.10.2023
SK-000038	3 Energy s. r. o.	1	04.12.2020	22.10.2023
SK-000039	Sayrus s. r. o.	2	11.01.2021	27.11.2023
SK-000040	Swietelsky-Slovakia spol. s r. o.	4	14.01.2021	12.10.2023
SK-000041	banet s. r. o.	1	14.01.2021	03.12.2023
SK-000042	MARCUS INDUSTRY a. s.	1	21.01.2021	19.11.2023
SK-000043	TuCon a.s.	1	21.01.2021	10.12.2023
SK-000044	MBM-GROUP a. s.	2	11.02.2021	14.01.2024
SK-000045	MENERT spol. s r. o.	3	05.03.2021	28.01.2024
SK-000046	SMS a. s.	1	23.03.2021	28.10.2023

Source: *self-elaboration according to Register of EMAS in the Slovak Republic. List of organizations registered in the EMAS Scheme with their registered office in the Slovak Republic. Available: <https://www.emas.sk/register-emas-v-sr/>*

EMAS is currently the most reliable and effective management tool on the market for organizations that want to improve their environmental performance through added value over the requirements of environmental management systems according to the international standard ISO 14001. As of 30 June 2019, 7 organizations with 37 sites are registered in the national EMAS register and 2 organizations under the joint EU registration with 3 places in the SR.

5 Conclusion and Recommendations

Each company influences the environment with its activities or services, the difference is only in the degree of influence of individual factors. Therefore, it is up to the Board of Directors to decide which way to decide when mitigating or eliminating the consequences of environmental aspects. At present, EMS certification can bring significant benefits to companies in various areas, and in the future it can be a necessary part of survival in the competition for clients. It is necessary for companies to be aware of the degree of responsibility for changes in the technological processes that create their activities.

Basic concept of environmental management and the application of a systems approach at the enterprise level through EMS and EMAS contributes to environmental protection and allows all business activities to be combined into one integrated program. The aim is to build environmental management as an integrated part of corporate management, which in conjunction with the quality management system and teamwork of all vertical and horizontal components using statistical tools for process management and their results is the basis of

comprehensive quality management and environmental management system. The strategic goals of environmental management are focused on the implementation of measures and improvement of the level of environmental burdens of the organization and activities related to environmental protection in the entire reproduction process.

This paper is focused on the approximation of environmental management systems EMS and EMAS on responsible registered entities in the Slovak Republic. The work provides a theoretical overview of the literature, but also a practical view of specific examples of accredited environmental verifiers. In the last sections, we also offer the advantages and benefits of implementing EMS and EMAS, which companies should consider when choosing.

The recommendation could also apply to the relationship with the public, when the company would start to inform externally not only its goals, but also activities and results related to environmental protection. By publishing an environmental report and declaring significant environmental activities, it would be possible to improve public opinion and market position and to continuously reduce and manage costs, and "energy management" could be introduced. The knowledge gained can be used by companies to gain an overview of the implementation of EMS and EMAS, to take measures to eliminate or eliminate the identified negative impacts on environmental protection, as well as a low-cost path to profit.

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