

Implementation of International Standards for Environmental Management in Visegrad Countries: a Comparative Analysis

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ABSTRACT

Objective: The paper aims at identifying the importance and relevant practices related to international standards for environmental management system (EMS) in the countries of the Visegrad Group (including Slovakia, the Czech Republic, Poland and Hungary).

Research Design & Methods: A review of mainstream literature on EMS will be conducted followed by document-based research as well as statistics database used as the methodological approach. Data will be gathered through the evaluation of Eurostat database and ISO Surveys.

Findings: The international comparison facilitates the evaluation of current implementation of EMS as well as contributes to the identification of the main possibilities and limitations for its development. The implementation of EMS according to the ISO 14000 and EMAS can help companies to find solutions that support processes of environmental changes with the purpose to improve corporate innovativeness and competitiveness.

Implications & Recommendations: This work is limited to the evaluation of statistical data. Further, the detailed empirical research based on case study approach and in-depth semi-structured interviews is needed to explain the difficulties experienced and benefits accrued during implementation of EMS.

Contribution & Value Added: This article contributes to existing literature on corporate sustainable development by applying environmental management systems to the practices of entrepreneurs that have a goal of environmental sustainability.

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INTRODUCTION

Numerous initiatives have been undertaken, new organizations have been created, and innovative projects promoting environmental protection have been carried out at both international and European levels. The strategy "Europe 2020", adopted in 2010 by the European Commission, includes three interrelated priorities. In addition to the development of smart (based on knowledge and innovation) and inclusive growth (by the promotion of the economy with high employment, delivering social and territorial cohesion), sustainable development also plays a key role, which according to the European Commission aims at supporting a more resource efficient and more competitive economy (European Commission, 2010).

In this context, an important role plays primarily companies because they are the direct users (consumers) of raw materials (Valentine, 2010). Many companies, especially large ones, already undertake a number of different actions for sustainable development (Jenkis, 2009). To reduce the uncertainty regarding the decisions concerning the development and business efficiency, companies should strive to implement action in accordance with the market trends, social and legislative initiatives, including the issues of sustainable development. In practice, different reasons may lead businesses to adopt more sustainable solutions. They may be related to improving the image of the company or the benefits of eco-innovation. Also, more and more environmentally conscious consumers have affected environmentally friendly and social activities of companies (Peattie, 2001).

The implementation of mechanisms for sustainable development allows primarily the identification of areas for achieving a competitive advantage by exploiting the opportunities and reducing the risk. The environment is becoming a part of the corporate management strategy, while business entities see their relations with the environment as a strategic resource whereas the environment protection serves as a potential source of competitive edge (Wagner, 2009). The use of systems and management standards in the areas of sustainable development may be due to both internal and external conditions, such as customer demands, competitive pressures, the need to improve internal processes, willingness to apply the proven tools or the requirements of business partners, mainly large companies (Chen, 2008).

In this context, the paper aims at identifying the importance and relevant practices related to international standards for environmental management systems (EMS) in Visegrad countries. The main research questions are (1) what is the state of EMS implementation in Visegrad countries? and (2) what are the differences between these countries? The paper highlights the differences regarding the implementation level in these countries. The international comparison facilitates the evaluation of current implementation of EMS as well as contributes to the identification of the limitations for its development.

This article contributes to existing literature on corporate sustainable development by applying environmental management systems to the practices of entrepreneurs that have a goal of environmental sustainability. For this purpose, the meaning of corporate environmental management as well as environmental management systems will be

presented first. In Section 3, the data used in the analysis will be described and the methodological approach will be introduced, while Section 4 and 5 presents the results. Section 6 concludes the paper with a discussion of the findings.

LITERATURE REVIEW

In times of global competition, many companies, both large, small and medium-sized enterprises are looking for opportunities to maintain or increase their market share. Implementation of various solutions that support corporate sustainability contributes not only to change the corporate image on a more 'organic' and reduce production costs, but it also can mean new activities. On the one hand, for entrepreneurs these actions can mean new business opportunities in response to the growing demand for "green" products, on the other hand, they also testify their greater responsibility. This kind of incentives leads to responsible and at the same time economically efficient activities undertaken by enterprises that can contribute to sustainable development through the innovative environmentally friendly solutions (Urbaniec, 2008).

Greening business management can be implemented at operational, strategic and normative level. It must be stressed that there are the following differentiated conditions for businesses (Brauweiler, 2010, p. 280):

- the normative level: ensuring social acceptance and legitimacy as a result of the implementation of the corporate culture and philosophy aiming at activities related to environmental protection and sustainable development,
- the strategic level: winning new markets and customers by implementing offensive strategy of environmental management,
- the operational level: implementation of environmental management through the integration with functional areas of the company (e.g. procurement, production, sales, human resources, organization, accounting and controlling).

In the broader sense, environmentally friendly business management can be analyzed both functionally, as well as institutionally (Delmas & Toffel, 2004). In the functional terms (i.e. in relation to the tasks and activities) environmentally friendly business management means:

- the systematically planned, implemented and controlled environmentally friendly behavior,
- in all functional areas of the company,
- outside the business in the context of vertical and horizontal co-operation,
- demonstrating the proactive, and thus the long-term and strategic actions, as well as
- directly related to the strategy of sustainable development.

In order to implement these comprehensive issues by various stakeholders (Urbaniec & Kramer, 2003), from the mid-1990s the importance of concepts of environmental management, such as internationally and formally recognized environmental management systems, which support the environmentally friendly business management in terms of institutionally (i.e. regard to the organization), has

grown. Among the most widespread international environmental management systems should be mentioned:

- the standard ISO 14001 - in force worldwide, that enables certification,
- EMAS (Environmental Management and Audit Scheme - in force in the European Union (EU), which enables validation.

According to the International Organization for Standardization, international standards relating to environmental management are intended to provide organizations with the elements of effective environmental management system that can be integrated with other management requirements and can help organizations achieve environmental and economic objectives (Whitelaw, 2004).

Environmental management systems are used for implementation (based on standard guidelines) normative, strategic and operational activities in the field of environmental protection and management. A commonly used definition of the EMS is based on ISO 14001 and describes EMS as part of the general management system in the organization, which includes organizational structure, planning, responsibilities, practices, procedures, processes and resources for developing and implementing, improving and maintaining the environmental policy (International Organization for Standardization, 2009). The definition of EMS according to ISO 14001 also applies to the environmental management system according to EMAS.

Both standards are aimed at a voluntary commitment in compliance with the three fundamental rules on which the concept of environmental management system is based, i.e. (European Commission, 2011):

- maintaining compliance with the requirements of the law on environmental protection,
- pollution prevention,
- continuous improvement.

The basis of any management system is the Deming cycle, also called the cycle of Plan-Do-Check-Act (PDCA). This formal approach provides for the continuous improvement of environmental performance, achieved by the organization (International Organization for Standardization, 2009, pp. 8-10). The main assumptions of the EMS according to ISO 14001 can be distinguished on the basis of the different phases of the Deming cycle (Brauweiler, 2010, pp. 284-285):

- Plan (policy planning): the ways to fulfill the environmental policy (objectives and target, environmental aspects, legal and relevant requirements, Environmental Management Programs).
- Do (implementation): implementation and operation to achieve policy, objectives, and targets (structure, resource, duty/responsibility, capability, training, communications, documentation, preparation and Action Plan when Emergency).
- Check (review): monitoring, measurement, compliance, record management, internal audit and evaluation of environmental performance.
- Act (management review): review of policy, performance progress, and corrective action.

Due to the constant repetition of these steps organizations shall be directed to continuous improvement of the EMS effectiveness.

In summary, the continuous improvement of environmental performance is based on the process approach in order to improve measurable results of the environmental management system, associated with significant environmental aspects, in accordance with environmental policy, objectives and targets (Whitelaw, 2004).

MATERIAL AND METHODS

As part of the article the analysis exemplified by Visegrad Group countries, namely the Czech Republic, Hungary, Republic of Poland and Republic of Slovakia, will be carried out. These four countries have been EU Member States since 2004. Apart from many commonalities, these countries differ from one another, first of all, in terms of the size of the country, and thus, the amount of companies that can implement EMS. The standardized environmental management systems are becoming important means for promoting environmental protection in companies not only worldwide but also in the Visegrad countries. The implementation of environmental management systems according to the ISO 14000 and EMAS can help companies to find solutions that support processes of environmental changes with the purpose to improve corporate innovativeness and competitiveness.

In this context, the main objective of this paper is to identify the importance of relevant practices related to international standards for EMS in Visegrad countries. The main research questions are what is the state of EMS implementation in Visegrad countries and what are the differences regarding the implementation level of ISO 14001 standard and EMAS system in these countries?

For empirical research, the qualitative and quantitative methods will be used. As part of the methodological approach, a review of mainstream literature on EMS will be conducted, followed by document-based research as well as the use of statistics database when applicable. Data base is made up of secondary data, which were taken from the database of the European Statistical Office (Eurostat) and from ISO Survey 2013. The data analysis covers the reference period between 2005 and 2012.

On this basis, the comparative analysis of the implementation of the most common environmental management systems at the international level (ISO 14001) and at the European level (EMAS) will be conducted. The choice of the comparative analysis for the evaluation of the EMS implementation in Visegrad countries was motivated by the desirability and appropriateness of the research objectives. The analysis will allow comparing the EMS implementation according to the ISO 14000 and EMAS in four countries of Central and Eastern Europe.

RESULTS AND DISCUSSION

International Environmental Management System according to ISO 14001

ISO 14001 is a standard developed by the International Organization for Standardization, which sets out requirements for an environmental management system. Preparatory

work for standard for environmental management was launched in 1993, but only in 1996 the international standard ISO 14001 “Environmental management systems – Requirements with guidance for use” was introduced. This standard underwent a process of verification in the review period 2000-2004. In November 2004, a new version of ISO 14001 was introduced (International Organization for Standardization, 2009).

The ISO 14001 standard is a part of the ISO 14000 series of standards, which also includes standards for instruments to support environmental management, e.g. Environmental assessment of sites and organizations (ISO 14015), Environmental Performance Evaluation (ISO 14031) or Life Cycle Assessment (14040).

ISO 14001 is a worldwide applicable standard for organizations across all sectors and economic areas (Brauweiler, 2010, p. 283). It can be implemented by any type of organization, regardless of the size, country or other conditions. Environmental standards according to ISO 14001 are becoming more and more popular in companies, first of all because of tightening the legal requirements for environmental protection and cost reduction opportunities. An important incentive for companies is also the increase in their awareness of the threats to the environment resulting from the business operation.

Enterprises, implementing an environmental management system, achieved many benefits that directly or indirectly influence the performance improvements. The most frequently mentioned benefits of EMS implementation are (Fura, 2013, p. 1712; Matuszak-Flejszman, 2009):

- reduction of operating costs through proper management of natural and other resources,
- compliance with legal requirements.

Many of these and other benefits contribute to the fact that more and more companies decide to implement the EMS: the ISO 14001 standard is the second most prevalent worldwide. The total number of companies in the world that have implemented the system according to ISO 14001 was 285 844 in 2012, occupying the second position in terms of implemented standards of the ISO, with a significant difference in the quality management system according to ISO 9001 (1 101 272 certified organizations in 2012). In the EU, most of certificates have companies in countries such as Italy (19 705), Spain (19 470), United Kingdom (15 884), France (7 975) and Germany (7 034), (International Organization for Standardization, 2012). The number of ISO 14001 certificates in Visegrad Group countries is shown in the following table.

Table 1. The number of ISO 14001 certificates in Visegrad countries between 2005 and 2012

Country	2005	2006	2007	2008	2009	2010	2011	2012	Growth in 2012 since 2005 (%)
Czech Republic	2122	2211	2731	3318	4684	6629	4451	4215	98
Hungary	993	1140	1537	1834	1659	1822	1580	1718	73
Poland	948	837	1089	1544	1500	1793	1900	2014	112
Slovakia	222	305	437	672	746	1102	1152	1426	542

Source: Own calculation based on International Organization for Standardization (2012).

On this basis, it can be stated that between 2005 and 2012 most of the ISO 14001 standards were implemented in the Czech Republic (4215 organizations in 2012). It should be emphasized that this is over 100% more than in much larger Poland. The least ISO 14001 certificates were recorded in Slovakia. Nevertheless, among the four Visegrad countries only Slovakia points out a systematic growth of implemented systems between 2005 and 2012. In contrast to Slovakia, in the Czech Republic, Poland and Hungary there was a significant decrease particularly in 2009 and 2011, which may be related to the economic crisis.

However, observing the growth rate of implemented systems in 2012 compared to 2005 it can be clearly seen that strongly high growth during that period is noted in Slovakia (542%) while in Poland it was only 112%, in the Czech Republic of 98%, and in Hungary of 73 %. This implies that, despite some fluctuations in all these countries, it is generally noted a positive trend, while the main application relates to the fact that the size of the country does not affect the number of implemented ISO 14001 standards, which is confirmed by the Czech Republic.

In conclusion, it should be noted that the environmental management system according to ISO 14001 is gaining importance in these countries, but compared to other EU countries it is needed to take appropriate action for its promoting and supporting. In addition to the EMS conforming to ISO 14001, a bit less prevalent system is the standard compatible with the EMAS Regulation, which is described in the next section.

European Environmental Management System according to EMAS

Eco-Management and Audit Scheme (EMAS) is another voluntary environmental management system, established by the European "Council Regulation (EEC) No. 1836/93 allowing voluntary participation by companies in the industrial sector in a Community eco-management and audit scheme". Coming into force in April 1995, the EMAS scheme was open for voluntary participation by organizations. Participation was initially restricted to industrial activities. The EMAS scheme had to be reviewed no more than 5 years after its entry into force. Subsequently, in 2001, the legislation was revised with the adoption of Regulation (EC) No. 761/2001 of the European Parliament and of the Council of 19 March 2001 (EMAS II). Key revisions include an extension of the scope of EMAS to all economic sectors, including local authorities. After five years, it was verified as EMAS II, mainly in terms of harmonizing the system with global standard of ISO 14001. The latest revision of EMAS came into effect on 11 January 2010 (EMAS III) based on Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organizations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC. With the recent modifications, EMAS system is available to all companies and institutions (hereinafter organizations), both public and private sectors (manufacturing and service companies, government, municipal enterprises, hospitals, schools, etc.) that seek to take action to successfully reduce the negative impact on the environment. Participation in the scheme is voluntary.

The primary objective of EMAS, as in the case of ISO 14001, is to promote the continuous improvement of the environmental performance of organizations through (DG Environment of the European Commission 2009, pp. 92-94):

- increasing environmental protection and minimizing impacts,
- greater management control, improving efficiency and financial savings,
- improving corporate environmental performance,
- improving communication between registered organizations and their stakeholders,
- increased staff awareness and environmental commitment.

EMAS is not only a system fully compliant with the international ISO 14001 standard, but also includes additional criteria (European Commission, 2011). An organization that wants to register under EMAS—in addition to the implementation of an environmental management system—must also publish environmental statement reviewed by environmental verifiers, actively join employees in the process of environmental management and comply with environmental law (European Commission, 2011). In addition, EMAS provides a clear pattern of operation, which supports assigning tasks, monitoring them and the exchange of information between stakeholders, which is a significant difference in relation to ISO 14001.

Smoothly operating environmental management system enables the delivery of measurable benefits both economic and financial. The most frequently mentioned benefits of registration of organizations under EMAS are listed below (DG Environment of the European Commission, 2009, pp. 10-14):

- reduced costs for resources and waste management,
- regulatory relief,
- risk minimisation,
- improved relations with internal stakeholders,
- improved relations with external stakeholders,
- competitive advantage,
- achieving regulatory compliance.

The cost for implementing EMAS vary with the size and the sector of the organization and can be divided into external costs and internal costs (DG Environment of the European Commission, 2009, pp. 15-16; Brauweiler, 2010, p. 291):

- external costs: the costs of EMAS registration (registration fees), costs for the external reviewer, and any additional external support from consultants for the initial review, auditing, training and ongoing implementation.
- internal costs: the implementation costs and maintenance costs.

Strong interest in this system shows the number of registered entities in the EMAS, amounting to 4452 organizations (8580 sites) in the whole European Union (27 countries) in 2012. Most organizations and sites with EMAS registration are located in countries such as Spain (1261 organizations and 1561 sites), Germany (1212 organizations and 1834 sites), Italy (1151 organizations and 1875 sites) (EU Commission, 2014). However, taking into account the number of organizations registered under EMAS in Visegrad countries, as it was demonstrated in Table 2, in 2012 majority of registrations

were in Poland (39 organizations and 106 sites), taking the 12th place among the EU Member States (Table 2).

EMAS is less popular than the ISO 14001. The greatest interest can be traced in Poland between 2005 and 2012 (growth of registered organizations by 3800%), but in 2005 the number of registered organizations was the highest in the Czech Republic (18 organizations).

With the exception of Poland, in all other Visegrad countries a decline of interest in this system is noted, particularly in 2010-2011. In the Czech Republic, a significant decrease is noted: from 31 organizations in 2009 to 21 organizations in 2011 (decline by 32%), and in Hungary the number of organizations that have implemented this system decreased from 20 in 2010 to 19 organizations in 2011 (5.3%). However, the largest decrease of interest in this system is noted in Slovakia: from 6 organizations in 2009 to 2 organizations in 2012 (200%) and in 2012 it achieved the level of the year 2005. It should also be emphasized that in the Czech Republic, despite the increase of registered organizations by 24% in 2011-2012, there is a decline in registered sites from 65 to 62 (5%).

Table 2. Total number of Organization and Sites with EMAS Registration between 2005 and 2012

Country	Czech Republic		Hungary		Poland		Slovakia	
	Organization	Sites	Organization	Sites	Organization	Sites	Organization	Sites
2005	18	20	2	2	1	1	2	2
2006	21	22	8	11	2	2	3	3
2007	28	30	13	16	7	7	5	5
2008	33	35	17	20	12	12	6	7
2009	31	33	20	23	19	26	6	7
2010	25	50	20	23	22	32	5	6
2011	21	65	19	22	25	32	2	2
2012	26	62	29	32	39	106	2	2
Growth in 2012 since 2005 (%)	44	210	1 350	1 500	3 800	10 500	0	0

Source: own calculation based on (European Commission, 2014).

On the basis of the above, it can be concluded that, compared to other EU countries, the organizations in Visegrad Group countries have a weak interest in EMAS. There can be many reasons for this. Among the potential barriers of the EMAS implementation there should be mentioned among others costs of registration and implementation, lack of incentives (financial incentives), the benefits of EMAS which are not clear or insufficient (DG Environment of the European Commission, 2009, pp. 45-46). It is therefore appropriate to promote best practice and continuous access to information directly in Visegrad countries more intensely than so far.

CONCLUSIONS

The implementation of EMS, as an integral part of the corporate sustainability, strongly supports good practices and solutions in the field of environment management. Moreover, it helps to control any undesirable changes in environment which may appear

as consequences of implementation of new projects. Strategic approach of EMS supports practical implementation to achieve efficient results on a long term basis. The implementation of environmental management systems according to the ISO 14001 and EMAS can help companies to find solutions that support processes of environmental changes with the purpose to improve corporate performance. Therefore, the EMS provides a competitive advantage for companies.

The main objective of this paper was to investigate the implementation state of EMS in Visegrad Group countries that are members of the EU (Slovakia, the Czech Republic, Poland and Hungary). The international comparison facilitates the evaluation of current implementation of EMS and highlights the differences regarding the implementation level in these countries.

This study shows greater importance and popularity of the environmental standards according to ISO 14001, first of all in the Czech Republic. On the other hand, the EMAS system was the most widespread in Poland (39 organizations) and Hungary (29 organizations) in 2012, although in 2005 most of EMAS registrations were in the Czech Republic (18 organizations). Detailed analysis also showed that in Slovakia, the smallest country of Visegrad Group, it is observed the largest increase in organizations that have implemented ISO 14001 between 2005 and 2012 (an increase by 542%), but the relative number of of organisation and sites with EMAS registration was the lowest among these countries.

The analysis showed that the development state of EMS implementation in Visegrad countries is noticeable, but their interest in implementing these systems is very different and independent of the size of the country. The main differences regarding the implementation level of EMS in these countries firstly indicate greater interest in the ISO 14000 standard than EMAS system, and secondly, the smaller countries (e.g. the Czech Republic) are more active in the implementation of the ISO 14000 standard than larger countries (such as Poland).

These differences can have many possible causes. For example, it can relate to national differences in legal environments that may make firms more or less willing to volunteer standards of behaviour against which third parties may assess their actions. Moreover, in the OECD survey of 2003 it was indicated that companies domiciled in countries with particularly high legal requirements have limited incentives to volunteer to exceed these, whereas internationally active companies from countries with relatively low legal standards will find it easier. In some cases companies feel under a certain pressure to operate under above mentioned requirements (OECD, p. 7). According to the findings of Nawrocka and Parker (2009), a successful EMS can be attributed to many internal and external factors in an organisation, such as its characteristics, management attitude, culture, policies and stakeholder participation.

Summing up the importance of EMS, it can be concluded that more and more companies in Visegrad countries are convinced of benefits of the environmental management system according to international standard ISO 14000, which as an innovative tool allows continuous reducing of environmental impacts while optimizing the utilization resources. In general, it should also be emphasized that the four Visegrad countries are characterized by a low level of development in this regard in comparison to the countries of "old" EU. Especially, EMAS system should be continuously promoted

among the key actors with the involvement of the companies and public bodies in order to increase its importance in the Visegrad countries. In order to meet the challenges of shaping the future and continuously react to the rapidly growing markets, scientific progress, environmental requirements and societal changes, Visegrad countries must continue to act in favor of sustainable development. Therefore, there is a challenge for politics, industry and science in order to strive for eco-innovative solutions and develop new products or technologies, taking into account economic, environmental and social goals.

On this basis it should be noted that the international comparison contributes to the identification of the use of EMS best practices and constraints for its development in Visegrad countries. This work is limited to an evaluation of statistical data and document-based research. Further, the detailed empirical research based on case study approach and in-depth semi-structured interviews is needed to explain the difficulties experienced and benefits accrued during implementation of EMS. It could also explain the reasons for the low interest in EMAS system in comparison to the leading EU countries.

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