УДК: 338.24:504.06
DOI: 10.36919/2312-7812.2.2022.43

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ENVIRONMENTAL MANAGEMENT AND AUDIT AS A BASIS FOR THE SUSTAINABLE DEVELOPMENT OF THE BUSINESS ENVIRONMENT

Управління сталим розвитком підприємств у сучасних умовах є надзвичайно актуальним напрямом наукових досліджень і має особливе значення для представників бізнес-середовища.

Стаття присвячена системі екологічного менеджменту та аудиту в бізнес-середовищі. У ній зазначено, що система екологічного менеджменту та аудиту є одним із найефективніших інструментів підвищення екологічної ефективності діяльності підприємств та державного контролю у сфері охорони навколишнього природного середовища.

Викладений матеріал базується на глибинному аналізі наукового доробку з даної проблематики. Особливу увагу було приділено аналізу міжнародних стандартів серії ISO 14000 та Європейської схеми екологічного менеджменту та аудиту (EMAS).

Будь-який проєкт, який претендує на успішне започаткування та реалізацію, потребує перегляду та аналізу. Система екологічного менеджменту та аудиту є важливою перевагою інвестування в Україну, що дозволяє передбачати та запобігати потенційним ризикам. Враховуючи, що EMAS є частиною чинного законодавства ЄС, а Україна є кандидатом на членство в ЄС з 23 червня 2022 р., у статті запропоновано заходи щодо створення ефективної системи екологічного менеджменту та аудиту.

Managing the sustainable development of a company in modern conditions is a highly relevant field of scientific research and is of particular importance for representatives of the business environment.

This study focuses on the environmental management and audit system (EMAS) in the business environment. It states that the EMAS is one of the most effective tools for improving the environmental efficiency of enterprises and state control in environmental protection.

The primary issue with the article is the coverage of the concept of the environmental management system. The authors considered its essence, performed a review of scientific work on an effective business management system and considered the Shewhart and Deming Cycle (PDCA). The importance of the environmental management system (EMS) is underlined as an important and universal tool for increasing competitiveness, both at the company and state levels. Particular attention is given to the analysis of the international standards of the ISO 14000 series and the European Environmental Management and Audit Scheme. The basic differences between the ISO 14000 series standards and the EMAS scheme have been established. The main gaps and benefits of implementing the environmental management and certification system in businesses in Ukraine have been revealed.

Any project that claims to be successfully initiated and implemented needs to be reviewed and analyzed. Environmental auditing is an essential benefit of investing in Ukraine, allowing to expect and prevent potential risks.

Considering that the EMAS is a part of the legislation in force in the EU, and Ukraine is a candidate for the EU membership from June 23, 2022, the article proposes measures to establish the effective environmental management and audit system.

Keywords: Business Environment, Sustainable Development, Environmental Management System; EMAS; ISO 14000

Ключові слова: бізнес-середовище, сталий розвиток, система управління навколишнім середовищем; EMAS; ISO 14000

Problem statement. In the integration context of Ukraine's economy in the EU, issues of greening production and developing environmental management systems are becoming increasingly crucial. The EMS minimizes the effects of the organization's activities on the environment and develops technologies for environmental protection and energy conservation that make production economically viable, environmentally safe, and socially necessary.

It is also influential to note that implementing environmental management systems become especially important in transitory economies because a large budget deficit reduces the probability that the government will finance activities related to corporate environmental policy.

Literature review. Many Ukrainian and international scientists have devoted their work to the problems and features of implementing the EMS in business, in particular, I. Dudnikova, R. Yefremova, T. Kirsanova, N. Pakhomova, L. Kozhushko, V. Ignatov, H. Kupalova, P. Skrypchuk, L. Fedulova, H. Bilyavskyi, O. Pogribny and others. Their issues highlight the problems related to the establishment of the effective EMS.

The research of A. Cosbey, B. Ackles, J. Bebbington, J. Hillard, M. Chaerul, J. Nouri, U. Steger, N. Panya, M. Tanaka, D. Walters, D. Shirley, A. J. G. Silvius, M. S. Reed are important for implementing the EMS.

Although scientific researches highlight issues of environmental management, some aspects of its application remain poorly researched, and developing a progressive model of enterprise management in the conditions of transformational market processes is relevant.

The purpose of the publication. This article considers the theoretical aspects and determines the essence of the environmental management system, as well as identifies the main disadvantages and advantages of implementing the EMS and certification at Ukrainian enterprises in European integration.

Results. For the first time, the term "Environmental Management," was used in the document "Agenda for the XXI Century," which was adopted at the International Conference on Environment and Development in Rio de Janeiro (Brazil) in 1992, which stated that "environmental management classifies as a key dominant of sustainable development and among the highest priorities of industrial activity of enterprises" [1].

The initial stage in the development of environmental management was the creation of the BS 7750 — "Specification for Environmental Management Systems" (SEMS), which was prepared by the British Standards Institution (BSI) under the request of the Confederation of British Industries (CBI) in 1992 [2].

The approach that defines the environmental management system is based on the concept that was proposed by Walter Shewhart and later developed by William Deming, the Plan-Do-Check-Act Cycle (Figure 1).

This model provides an ongoing process that allows the organization to achieve continuous improvement and provides [3]:

- Establishment of environmental goals and processes necessary to achieve results under the organization's environmental policy;

Figure 1. Structure of the PDCA Cycle

- Implement measures according to the planned process;
- Monitoring and measurement of the process established under the environmental policy;
- Taking measures for continuous improvement of the SEM.
- Implementation of the environmental management system requires the following steps undertaken by the organization [4]:
- Development of the organization's environmental policy;
- Appointment of persons responsible for its coordination;
- Determination of the organization's interaction with the environment;
- Assessment of the actual and potential impacts on the environment;
- Determination of relevant regulatory and legal requirements;
- Definition of the environmental goals, tasks, and programs;
- Monitoring and measuring progress to achieve set goals;
- Review of the system and environmental indicators;
- Constant improvement of the organization's environmental indicators.

The environmental management system acts as a tool for improving the environmental efficiency of enterprises. It helps resolve issues by evaluating relevant practices and encourages employees to undergo training to achieve the objectives of balanced management.

An organization that implements the EMS effectively manages resources, implements minimizes waste, and reduces costs.

The effective environmental management policy encourages business entities to improve development and contributes to maintaining a competitive advantage and the ability to give the environmental business a good chance for long-term success.

Improving the system of pollution prevention, environmental risk minimization, and natural resource conservation increases customer confidence, helps attract new customers, boosts employee morale helps businesses expand into new markets, and encourages business entities to take part in welfare programs to promote economic progress. Because of their environmental management policies and procedures, companies can impress investors.

Business entities project themselves as environmentally friendly companies. They emphasize their commitment to improving environmental policy through marketing tools that allow them to build a strong customer base. An organization that promotes its products and services as environmentally friendly increases its sales opportunities.

When business strives to become certified to recognized standards, it gains credibility with stakeholders and customers alike.

The goal of implementing the environmental management policy is to minimize energy, and resource consumption, as well as reduce waste. Each scheme requires the additional use of time and resources, which can be costly in terms of time, effort, and resources for the organization. Every business entity finds it difficult to implement such programs in their business plans because of their high cost [5].

ISO 14000 and EMAS are environmental management and audit systems that increase efficiency and effectiveness. Their application can provide improved environmental performance, business competitiveness, money savings, better public image, and management of environmental legal obligations.

ISO 14001 is a part of a series of international standards that establish requirements for environmental management systems. Manufacturers and service providers, and in all industries, use it worldwide in the public and private sector.

ISO 14001 enables organizations to develop and implement policies and objectives that consider legal requirements and information on important environmental aspects. It is designed to apply to organizations of all types and sizes and adapt to different geographical, cultural, and social conditions. This environmental management system allows an organization to develop an environmental policy, set goals and processes that harmonize it and take part in its environmental policy by improving its environmental impact and aligning its system with the same standard [6].

ISO 14001 was developed as an auditable standard that outlines how organizations can implement an effective environmental management system. It is designed to strike a balance between maintaining cost-effectiveness and reducing environmental impact with the commitment of the organization.

This simple graphic shows the world's top 10 countries for ISO 14001 certification. The data are based upon ISO survey results that estimate the number of valid certificates.

The International Organization for Standardization (ISO) is the responsible body for the scheme and independent external experts handle certification. Auditors physically "measure" the environmental management system under the requirements of ISO 14001. Using the tools of surveys, interviews, discussions, and referring to aim evidence, the auditor will judge whether the system satisfies all points of the Standard [7].

ISO 14001 provides a harmonized standard for managing of a company's impact on the environment [8].

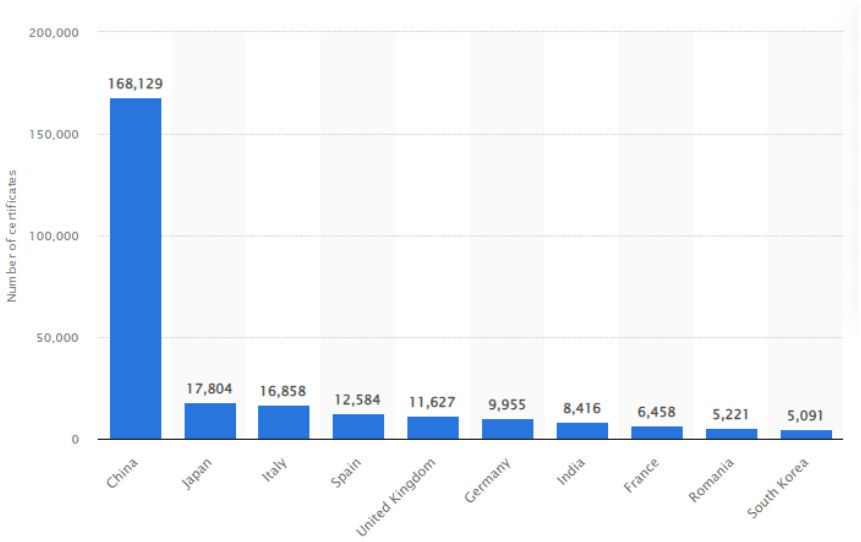

Figure 2. Top 10 Countries for ISO 14001 Certifications Worldwide

In contrast to ISO 14001, the European Eco-Management and Audit System is an incentive management tool developed by the European Commission to evaluate, report and improve the environmental performance of companies.

EMAS caters to various organizations seeking to improve their environmental performance. It covers every sector of the economy and services and uses them on a European scale [10].

As the chart shows, Germany, Italy, Spain, Austria, and Slovakia are the leaders in implementing EMAS in the European Union [16].

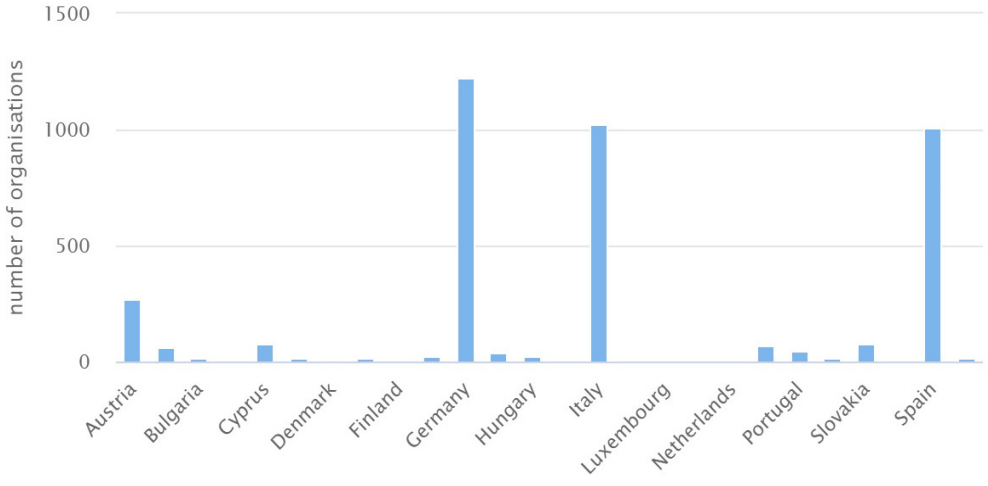

Figure 3. Dynamics of Implementing EMAS in the EU

EMAS assists organizations in finding appropriate tools to improve their environmental performance. The participating organizations are committed to assessing and reducing their environmental impact. Third-party verification guarantees that the EMAS registration process is external and independent [11].

The provision of publicly available information on an organization's environmental performance is an important part of the EMAS. Organizations get more transparency externally through environmental reporting and internally through active employee engagement.

The EMAS regulation is associated with an object that additionally requires companies to publish an environmental statement and provides for a certification system with independent environmental verifies and registration authorities [9].

The procedure for joining the EMAS after applying to the competent authority includes [12]:

- Conducting a primary environmental examination;
- Planning of internal environmental policy for the year;
- Conducting an annual internal environmental audit;
- Constant improvement of environmental efficiency;
- Publication of the annual environmental statement;
- Verification and validation of the audit by the environmental verifier of the enterprise.

The EMAS implementation tools are aimed at supporting all organizations, especially small and medium-sized organizations. Micro, small and medium enterprises account for 72.9% of all enterprises in the EU, collectively causing more industrial pollution and producing more waste than large enterprises. However, large companies are more likely to address sustainability problems than small businesses [14, 16].

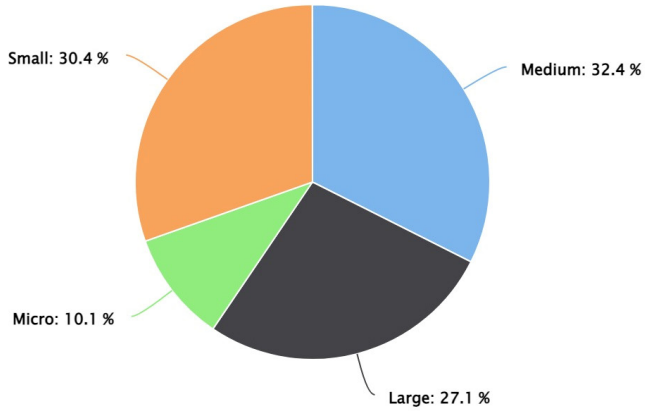

Figure 4. Ratio of Business Size in the EU

Rapid implementation of the EMAS allows for improved productivity, reliability and transparency (Figure 5, 6). The first reason for becoming the EMAS is that the system plays a key role in resource efficiency. The second good reason to be the EMAS is the key role of the system in addressing climate change. Only registered organizations have the right to use the EMAS quality mark, the official the EMAS logo. The logo enables

stakeholders to become better acquainted with the EMAS. The logo also points to legal compliance, local responsibility, active employee participation, reliability, and credibility of environmental information [15].

Figure 5. General Dynamics of EMAS Registration in the European Union

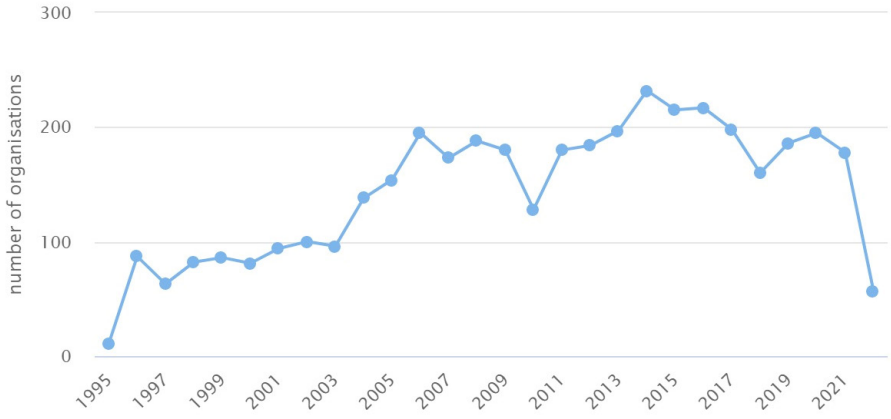

Figure 6. Dynamics of New Organizations Registration at EMAS in the EU

Table 1 summarizes the fundamental formal and system differences and similarities between the two standards. This analysis considered several aspects: regulatory, environmental, geography, purpose, organizational context, leadership, legal compliance, employee engagement, external communication, and internal audit. The major differences are highlighted in italics.

The main drivers of the adoption of the ISO 14001 standard are the pressures exerted by external stakeholders, and participation in green investments, while implementing the EMAS depends primarily on internal motivations.

Table 1.

Formal and systemic similarities and differences

Aspect	EMAS	ISO 14001
	European Regulation 1221/2009 European Regulation 1505/2017	*Issued by a public organization, which comprises the village from the national standards authorities*
Goal	*Improvement of the environment*	*Improvement of SEM to improve environmental indicators*
Implementation	Voluntary	Voluntary
The context of the organization	The identification of both external and internal aspects and stakeholder needs and expectations.	The identification of both external and internal aspects and stakeholder needs and expectations.
Leadership	EMAS has a management representative who can be a member senior management	Senior management needs to demonstrate leadership and commitment
Ecological aspects	*Environmental examination according to Annex I; Life cycle perspective*	*Requires the process of determining environmental aspects; Life cycle perspective*
Employee engagement	*Employee training; Active involvement of employees, as they are considered a driving force*	*Employee training*
External communication	*Open dialog with the public, the authorities, and other stakeholders; External reporting required environmental statement*	*Dialog with external stakeholders is not required; External reporting is not required*
Internal audit	Environmental indicators, SEM efficiency, and legal compliance	SEM and standard requirements
References to authorities	*Official registration by authorities*	*Missing structured link*

Because the ISO certification does not have a structured relationship with authorities, the commitment to improve environmental performance is less than with the EMAS registration. In the ISO certification, the most significant improvement in environmental performance occurs at the initial certification stage. ISO 14001 emphasizes the environmental performance of the business environment, which provides the opportunity to improve sustainability because it is a globally recognized standard [10].

The long-term strategy of Ukraine's integration into the European Union outlines a progressive approach to the relevant standards of environmental legislation and ensures the effectiveness of their implementation mechanisms, because from June 23, 2022, Ukraine is a candidate for the EU membership. The country should implement several transformations to establish an effective system of environmental management and audit, among which the most important are [13]:

Political and legal reform, which provides for a system of measures for adopting Ukrainian legislation and laws integrated into protecting the environment and management of nature. The creation of the institutional infrastructure of environmental management and revision, clarification, and clear demarcation of functions, rights, and duties of central and regional (local) bodies of state and executive power regarding the regulation of environmental protection activities. Because of the creation of a system to implement efficient and environmentally management solutions, to minimize administrative interference in the production and economic activities of commercial entities.

The financial and tax reforms should introduce measures to create a stable, stimulating taxation system and a mechanism of benefits, as well as the formation of a flexible system of environmental insurance to accumulate financial funds for the elimination of damage caused to the surrounding natural environment.

Investment reform is designed to stimulate investors who will contribute to developing environmental infrastructure and implementing environmental projects. Develop public-private partnerships and stimulate leasing activities related to the nature management. The establishment of environmental and economic zones with the status of state protectionism and free enterprise zones.

The enhancement of the organizational and economic mechanism of the formation of the environmental management system in Ukraine should be based on [13]:

- Development of a method for the formation of SEM;
- Implementation of monitoring of current environmental legislation;
- Reforming the system of state guarantees and benefits when creating an organizational and economic mechanism of ecological entrepreneurship;
- Streamlining the system of taxes, fees, and other payments of environmental orientation and transforming the mechanism of their distribution to the budgets of different levels;
- Creation of a system of environmental insurance and eco-audit to accumulate funds for the environmental rehabilitation of the territory;
- Development of proposals regarding the forecasting mechanism and expert assessments of the consequences of irrational nature use based on the creation of an ecological data bank and the development of ecological consulting in Ukraine;
- Activation of the feedback system regarding the acceleration of the mechanism of implementation of the environmental management system at different levels of regionalization;
- Involvement of the public and non-governmental structures in the effectiveness's verification of the adoption of measures regarding the development of the environmental management and audit system in Ukraine;
- Formation of public opinion by implementing the principles of ecological and economic education, and educational work with the masses.

In conclusion, the EMS is a useful tool for organizations managing their environmental aspects. The organization must consider multiple parameters before adopting either system to select the most acceptable solution.

ISO 14001 encourages companies to speed up implementing technical and organizational mechanisms to reduce environmental impacts.

The EMAS includes all the requirements of the ISO 14001:2015 with additional points, such as environmental statements and employee participation.

Both standards include such things as the context of the organization, stakeholder needs and expectations, and the life-cycle perspective, which are also relevant to sustainable development.

The study of the experience of developed countries, which have significant achievements in environmental management, is a necessary condition for the reform and development of an effective environmental management system in Ukrainian businesses.

Integrating Ukraine into the European Union is expected to contribute to the dissemination and implementation of the requirements of international environmental management and business certification standards in our country.

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