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IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT SYSTEMS – ISO 14001 OR EMAS

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ABSTRACT

The human-nature relationship is manifested in several ways: in urban life, industry, culture etc. Man, through his intervention, has significantly changed the environment, according to his needs. Most human entities aspire to achieve the economic development in order to secure the increase of life standards and to protect and improve the environment, both for themselves and for future generations. All local, regional, national and international levels need to adopt environmental policie. In this paper, we intended to present not only a philosophy of environmental management, but also a substantive action universally valid at the European and global level, through the environmental management system. The Environmental Management System (EMS) is a component of the general management system which includes the organisational structure, planning activities, the responsibilities, practices and procedures, processes and resources for developing, implementing, achieving, analysing and maintaining the environmental policy. The objective of the Environmental Management System is to preserve natural resources, limit the emission of pollutants and environmental risks and guarantee safety at work.The International Standard SR EN ISO 14001 and the EMAS European regulation are useful instruments supporting companies in adopting the management systems, which take into consideration each stage or process related to environmental protection. The most current environmental management systems are presented separately, ISO 14001 and EMES, through their own characteristics, as well as their comparative analysis. The paper ends with the conclusions of the study, acknowledgements and the list of references.

Keywords: Sustainable development, environmental management system, ISO 14001, EMAS.

INTRODUCTION

Sustainable development is generally regarded as the holistic result of three components: environmental, social and economic. Sustainability paradigm rejects the assessment according to which the negative effects on the environment and the social problems are the inevitable and acceptable consequences of economic development. Sustainability is considered as a paradigm of a vision for the future in which economic, social and environmental considerations work in a balanced way to develop and improve the quality of life(Rosalyn McKeown er al., 2002).

If the intervention on the environment is slow, gradual changes of adaptation shall be produced. If changes are sudden (as related to the speed of adaptation), ecological disasters occur.

At the Debate-Conference – Challenges in the environmental field of April 2006, Stavros Dimas, European Commissioner for Environment, pointed out: "The reason why the European Union addresses environmental issues so seriously is because the world faces serious environmental challenges with major implications for prosperity and stability of our societies in the future. The E.U. is convinced that there is still time to win the battle against the climate if the international community agrees to take serious measures to limit and then reduce global emissions of gases with greenhouse effect".

Organisations are increasingly concerned about achieving and demonstrating environmental performances, controlling their own activities, products or services. These aspects are part of the legislation that is becoming more stringent, of the development of economic policies and of other measures meant to encourage environmental protection, of increasing the enterprises' concern on issued related to environment, including the sustainable development. The adoption and implementation in a systematic way of a set of techniques for environmental management may help achieve optimal results for the benefit of the enterprise.

As defined by the Maastricht Treaty, the European Community's global objective is "to promote a sustainable economic development". Sustainable development requires the use of certain instruments of the environmental policy and recommends that the environmental responsibility is shared by the authorities, industry, consumers, etc. Moreover, this outlines the environmental protection as key priority for the European Union. A healthy environment is an essential condition to ensure long-term existence having as central focus an improved quality of life. Therefore, European citizens demand for a high level of protection and preservation of human capital. In the future, economic growth and living standards shall continue to exert strong pressure on the planet's ability to respond to the world in terms of resources and pollution absorption, the risk being the running-out of current natural resources at the expense of tomorrow's generations.

The phrase "environment" was initially rejected by some scientists, because it excludes the human species as a component of the environment. Nowadays, the environment is accepted as a hierarchy of socio-ecological systems or as a hierarchy of organised systems, which includes man, too (Balan, 2011).

ENVIRONMENTAL MANAGEMENT

The globalisation of environmental issues causes increasingly serious concerns. Companies are increasingly concerned to achieve and demonstrate a healthy environmental performance by controlling the impact of their activities, products and services on the environment. They perform "audits" to assess their environmental performance. However, these audits alone are not enough to ensure an organisation that its performance not only does it meet, but shall, in the future, meet the legal requirements.

Environmental management is the management of those activities of a company which have or might have an impact on the environment. It aims the responsible use of natural, economic and human resources so that the environment is protected and improved. It seeks to protect valuable environmental assets, to best manage local areas and develop relationships between the population and the environment. Nowadays, the environmental management objectives are to ensure the fundamental principles of sustainable development which aim to replace economies with the environment, for today's generation and future generations.

The advantages of environmental management:

1. Reducing costs, which may be a result of: improving environmental performances;

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2. streamlining existing processes, introducing new, efficient processes, waste disposal, reducing the amount of raw materials, designing the product;
3. Ensuring enforcement of law;
4. Anticipating future legislation;
5. Reducing environmental risk;
6. Increased market opportunities;
7. Improving the image towards customers, partners, and investors.

Exploitation of main environmental resources (air, water, soil, etc.) and consumption of natural resources at a rate higher than the land's ability to refill has become a serious issue in terms human's quality of life and enterprises' competitiveness.

This issue may be turned into the favourable opportunity of "catching the wave" of sustainable development. In order for this to happen, it is necessary to act in two directions:

1. Changing the existing production systems by improving environmental performances of production plants and infrastructure;
2. Removing harmful substances (or neutralizing their impact) and reducing the quantity of raw materials and the consumption of energy per unit product.

Environmental Management System [5] (such as EMAS and ISO 14000 series of standards) is the standard upon which organisations and companies can measure their performance. At the same time, public opinion has become increasingly concerned with environmental issues, which are often reflected in consumers' behaviour, who express their interest in environmentally friendly products. This is how the Eco-Label appeared which provided information on the impact on the environment, promoting low-impact products. Therefore, for an organisation to adopt and implement an environmental management system, it has to learn how to manage the environmental variable on a global, systematic and coherent manner for the continuous improvement of environmental performances and production process [6]".

The Environmental Management System (EMS is a component of the general management system which includes the organisational structure, planning activities, the responsibilities, practices and procedures, processes and resources for developing, implementing, achieving, analysing and maintaining the environmental policy. It is a tool for identifying and solving problems which provide organisations with a method to manage activities, products and services, correlated with environmental protection and help achieving goals related to environmental obligation and performance. Moreover, it is a mechanism addressing certain major environmental issues, through the allocation of resources, designation of responsibilities and ongoing evaluation of practices, procedures and practices, organised in a systematic way. Therefore, the environmental management system stands as a powerful instrument that allows the organisation to achieve and control the level of environmental performance it sets out. This provides a systematic way of solving and managing immediate and long-term impact of products, services, and processes of an organisation on the environment and gives order and consistency to solve environmental issues by allocating resources, assigning responsibilities and permanently evaluating practices, procedures and processes.

Any activity causes, or may cause a consumption of natural resources (water, energy, non-renewable raw materials), emissions (solid, liquid, gas), waste production etc.

EMS objective is the preservation of natural resources, limitation of polluting emissions and environmental resources and ensuring safety at work. The benefits of implementing the

system shall be [7]: pointing out and structuring relationships between the local public authority and the local community, solving more of the community's issues, becoming aware of the importance of improving the activity's quality, reducing the time required for decision taking, ensuring an adequate work environment, making an efficient management of documents, demonstrating an innovative policy to customers and employees, the possibility of cooperation with new customers and companies, risks are controlled over the long-term, avoiding fines, a better reputation, demonstrating an effort to protect the environment in accordance with the rules in force.

The International Standard SR EN ISO 14001 and EMAS European regulation may be useful instruments in this regard. In fact, they support companies in adopting management systems that take into consideration environmental protection issues during each stage or process.

Whether the Environmental Management System is implemented at corporate or local (the factory) level, the following reasons underlie the decision making process [5]:

1. Sustainable development, social responsibility and performance improvement;
2. Ensuring compliance with legislation and reducing the risks and responsibilities;
3. Company image and the environmental permit application process;
4. Satisfying the supply chain;
5. Increasing market opportunities and competitiveness.

It is important to distinguish between the main driving forces of management and the potential benefits offered by an EMS. Driving forces are mainly related to the critical factors of business improvement in all.

ISO14000 ENVIRONMENTAL MANAGEMENT SYSTEM

ISO defines EMS as "a component of the total management system which includes the organisational structure, planning activities, the responsibilities, practices and procedures, processes and resources for developing, implementing, achieving, analysing and maintaining the environmental policy".

Elaborated and published by the International Standardization Organization (ISO), ISO 14000 series of standards covers a wide range of environmental topics, such as environmental management systems (EMS), EMS audit, products' life cycle analysis, Eco-Labelling, environmental performance. It should be noted that [9] ISO 14000 is not a product standard. They establish requirements regarding what the organisation must do to monitor the impact of its activities on the environment.

ISO 14000 series includes several standards that specifically refers to the way a product or service is manufactured or delivered. From this point of view it is similar to ISO 9000, regarding quality management. The difference is that ISO 14000 refers to systematic, controlled reduction of the impact on the environment, in particular through creating analysis and control tools that allow the organization to comply with the principle of "cleaner production".

ISO 14001 is the reference standard for EMS from ISO 14000 series. It describes the main requirements an environmental management system has to comply with. ISO 14001 requires that each environmental management system reflects the type of the organization, its own activity and the specific environmental aspects. An environmental management system ISO 14001 provides a systematic and coherent framework for improving environmental

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performance, achieving compliance with environmental legislation and prevention of non-compliance.

ISO 14000 family, as a whole, provides management tools for organisations to meet environmental aspects and improve environmental performances. According to ISO 14001, the environment is extending from the organisation to the global system. The environment of an organisation includes the air, soil, natural resources, the flora, fauna, human beings and the relationship between them.

These instruments may lead to getting significant and tangible economic benefits, such as [9]:

1. Reducing the use of raw materials / resources;
2. Reducing energy consumption;
3. Improving efficiency of processes;
4. Reducing costs related to waste disposal process;
5. Using renewable resources.

The improvement of environmental performances, associated to each of these economic advantages, is the contribution of ISO 14000 family to the environmental and economic components of a sustainable development.

The ISO 14000 family consists of several standards, some of which relate to the environmental management system (EMS) and others are tools which help the enterprise achieve their policy, reach their objectives and targets in the environmental protection field.

In short, SR EN ISO 14001 refers to:

- International standard of Environmental Management Systems;
- Internationally recognised;
- Optional external certification;
- Voluntary environment report;
- Commitment to comply with the law;
- Continuous improvement of the management system;
- Applicable to each sector of the economy: banking, transport, financial, supply of products and services etc.;
- The system is focused on pollution prevention;
- External audit from 1 to 3 years;
- Freedom to chose the impact's analysis method;
- Focused on the environmental management system.

ISO 14001: 2004 is implemented in 200,000 organisations in 155 countries [9], and in Romania there are 2,515 [10]. The new version contains many improvements and changes; the new standard does not involve major changes, but supplementary requirements; the main directions of reviewing were focused on:

1. Improving compatibility with ISO 9001:2000;
2. Clarification of requirements.

From a legislative perspective, ISO 14001 is perfectly aligned to the current European legislation on environmental issues, but its main purpose is more than a mere compliance on theoretical level, it is about how to achieve and practically demonstrate high environmental

performance, through continuous monitoring of the consequences on the environment of their proper activities, services and products.

EMAS ENVIRONMENTAL MANAGEMENT SYSTEM

Eco-Management and Audit (EMAS) Community Scheme [8] is a management tool**,** designed for companies and other organisations to evaluate, report and improve their environmental performance. Participation in EMAS is available to all companies and other private and public organisations engaged in improving global environmental performance and which are located in the European Union Member States and in other countries of the European Economic Area (EEA) – Iceland, Lichtenstein and Norway. Organisations taking part in EMAS come from all fields of activity, the industrial or primary sector, services, public sector or non-governmental organisations (NGOs).

EMAS in the European Union

Despite all the directives and regulations adopted by the EC, as well as national and international actions in this area, environmental quality is missing on both regional and worldwide levels.

As defined by the Treaty of Maastricht, the overall objective of the European Community is "to promote sustainable economic development". Sustainable development requires the use of environmental policy instruments and recommends that environmental responsibility be shared between authorities, industries, consumers etc. Regulation (EC) No. 761/2001 of the European Parliament allows voluntary participation by organizations in the EMAS [1]. Decision (EC) No. 681/2001 and Recommendation (EC) 680/2001 on September 7th, 2001 represent a guide for the implementation of regulation (EC) 761/2001.

EMAS in Romania

In Romania, Order No. 50 on 01/14/2004 establishes the procedure for organizing and coordinating environmental management and audit schemes (EMAS) in view of the organizations' voluntary participation in these systems. This procedure is established for:

i. Its introduction within organizations performing environmental impact management system and environmental audit;
ii. Evaluation and improvement of environmental performance within organizations;
iii. Provision of relevant environmental information to the public and other stakeholders outside these organizations.

This Order applies to organizations in all fields of activity where improvement of the environmental performance is a goal (for some part of their activity or for all activities performed). In Romania, EMAS certification is just at the beginning; five organizations only have obtained so far this certificate.[11]

The main characteristics of EMAS system are:

a. European regulation with precise requirements;
b. Valid only in Europe;
c. Mandatory external audit;
d. Compulsory publication of the audit report;
e. Compliance with legal requirements is mandatory;
f. Continuous improvement of environmental performance is a must;
g. It can be applied to economic enterprises;

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h. "à la carte" internal management system;
i. Continuous improvement and pollution prevention;
j. External audit to the maximum of 3 years;
k. Comprehensive environmental review according to predetermined criteria;
l. Perfectly compatible with ISO 14000 series and ISO 9000 series.
m. Reference to the best available technologies.

EMAS registration advantages are [11]:

i. Maintaining and improving the organisation's internal and external image;
ii. Maintaining good working relationships with the environmental authorities;
iii. Decreasing or reducing criminal and legal liability;
iv. Reducing operation costs (saving the consumption of utilities: electricity, water, fuels, raw materials);
v. Increasing the organisation's profit by increasing sales offers on the european markets.

EMAS and ISO 14001 comparative analysis

EMAS and ISO 14001 have become international instruments that allowed enterprises receptive to new to earn money. This is based on the introduction of two management systems: the commitment of a policy and the implementation of a self-improvement system to comply with the policy.

Similarities [5]

i. Obtaining commitment from the company's general management on the desire and support in implementing the environmental management system.
ii. They have as common objective the promotion of an effective environmental management. The European Commission has acknowledged that the European Standard for Environmental Management Systems, ISO 14001 may provide a basis for EMAS.
iii. The initial analysis: determining the exact position of the company in relation to the environment. It is a starting point for the implementation of EMS, upon which environmental performance shall later be judged and improved.
iv. The environmental policy, usually published in writing as the Environmental Policy Statement, expresses the general management's commitment to comply with the environmental legislation and to pursue continuous environmental performance. In this way, not only is the responsibility for implementing the environmental policy ensured, but also the support required by it.
v. The environmental programme starts from the identification of environmental aspects and the impact associated to them, it contains measures to be taken over a period of time. It translates the company's environmental policy into objectives and targets, it identifies the activities required to achieve them, defines employees' responsibilities and related financial resources.
vi. Structures and responsibilities: definition, allocation and communication of environmental structures, responsibilities and authority necessary to implement the EMS. Awareness, motivation and provision of adequate knowledge through a training programme. A representative of the company's management shall be appointed, responsible for the environmental protection activity.

vii. Integrating environmental management into the company's general management, which includes procedures for embedding environmental requirements in all areas of the company.

Table 1 - EMAS - ISO 14001 differences

EMAS	*ISO 14.001*
Legislative regulation within the EU (1836/29.06.1993)	International standard (1996)
Applicable only in the UE	Applicable on an international scale
Requires initial analysis of environmental impact	Initial environmental analysis is not mandatory (only suggested in annex 4.2.1. of the standard)
Continuous improvement of environmental performance at the best available technology	Continuous improvement of EMS reflected through increased environmental performance
Requires public environmental statement, which allows access to the environmental policy and programme	Suggests external communication, but it is up to the company to decide the content of information, requires public access only to the environmental policy
Frequency of achieving audit within maximum 3 years	Does not mention the frequency of making the environmental audit
EMS requires a current record of environmental effects	Not required
For compliance requirements of *EMAS,* verification and certification require the employment of accredited auditors and agents	Offers three possibilities for verification and certification: Issuing a statement as it follows: "Our company has an environmental management system which complies with ISO 14001 standards". Certification by an independent organisation is the most popular method, which enjoys recognition
EMAS requires that the policy, programme, environmental management system and details on the organisation's performance are made public, as part of the environmental situation.	ISO requires only that the policy be made public

CONCLUSIONS

One of the most powerful measures regarding the environmental control is the EU legislation, probably as a result of a strong political lobby, especially in countries like Germany, an academic-thinking level on environment in countries like Sweden and the Netherlands and pressures of certain international bodies such as Greenpeace.

The reasons which led to the creation of these standards are extremely complex, exceeding the purely economic frame, to tap into a sphere of ethics of the debates that excite most people in the world, namely on the type of planet that we are going to bequeath to our descendants, to the future generations.

Great efforts have been made in the European Union for member countries to accept that sustainable development is the result of an integrated approach of political and decision taking factors, where environmental protection and long term economic growth are regarded as complementary and mutually dependent.

Most companies are aware that the legislation on environment shall have a powerful impact both on their business and on their lives. The significant extension of legislation on

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environment shall have a great impact on all businesses especially in areas of activity such as: energy, agriculture, transportation and tourism.

Organisations are increasingly more concerned to achieve and demonstrate environmental performances, by controlling their own activities, products or services. These aspects are part of the increasingly stringent legislation, the development of economic policies and of other measures meant to encourage environmental protection, of increasing the enterprises' concern on issues related to environment, including sustainable development.

Environmental management is the management of those activities of a company that have or might have an impact on the environment. It aims the responsible usage of natural, economic and human resources, so that the environment is protected and improved. In the environmental policy, the organisation has to acknowledge that all activities, products and services within the defined field of the organisation's environmental management system may cause impacts on the environment, the issues approached depending on the type of the organisation.

The Environmental Management System (EMS) is a component of the general management system which includes the organisational structure, planning activities, the responsibilities, practices and procedures, processes and resources for developing, implementing, achieving, analysing and maintaining the environmental policy.

Environmental Management Standards (such as EMAS and ISO 14000 standard series) is a standard by which organisations and companies can measure their performance. At the same time, public opinion has become increasingly concerned about environmental issues, often being reflected in consumers' behaviour, who express their interest in environmentally friendly products.

There are many ways of Environmental Management Systems that can be applied depending on the size and the type of activity of the enterprise and the danger the activity represents to the environment. This ranges from internal, single methods or awarding prices to eco-friendly companies, to the introduction of some management systems aiming excellence in the field of environmental protection. These methods are not for big enterprises or international companies; they can also be implemented by SMEs, public institutions, services suppliers, and even by small-scale manufacturing operations. EMAS, ISO 14001 or the environmental performance indicator ISO 14031 are methods that allow the integration of environmental protection in the enterprise's daily activity.

The implementation of the environmental management systems EMAS and 14001 does not meet requirements as it should. From our point of view, among the main causes we list the following: poor information on the importance, necessity and benefits of implementing these management systems; the government does not stimulate the organizations, by means of adequate policies, to implement the above mentioned systems; the educational system does not provide enough attention to preparing young people to deepen and apply the principles of sustainable development.

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