

## **ANALYSIS OF THE ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM DIFFUSION**

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### **Abstract**

*As a reaction to the negative effects of economic development on the environment, the international community began to seek solutions to support a sustainable development. One of the solutions is the implementation of the environmental management systems.*

*ISO 14001 is an environmental management standard which establishes a worldwide environmental management system, with the aim of self-assessment or certification.*

*At the beginning of the present paper are presented the core concepts of the environmental management and ISO 14001 standard. Then, it is realized an analysis of the 14001 environmental management system diffusion at global, regional and country-level.*

**Keywords:** *environmental management, environmental management systems, ISO 14001*

**JEL classification:** *Q00, Q01, Q56.*

### **1. Introduction**

Throughout human history, the relationship between economic development and environment has undergone many changes. In essence, the environment has been viewed as a source of raw materials and energy required to sustain the living as a "depository" of unusable results of human activity. From primitive barter to the complex economic relations existing in society today, the economic evolution is reflected in the evolution of the main features of the environment, the environmental factors (water, air, soil, subsoil, flora, fauna) and their composition; structure, and how to make the circuit in nature, global environmental changes and the amount and quality of available natural resources for humans.

Environmental degradation occurs as a consequence of complex processes, in interaction, sometimes hardly controllable: population growth,

economic growth, scientific and technical progress, industrialization, urbanization, changing natural habitats finalized through the decreasing of the environment availability to ensure the necessary resources for the society.

As a consequence, it appeared the necessity to substantiate ecological economic decision to environmental management, which manifests itself in the economic development side of the company as the use of environmental management systems, "part of the general management system which includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources needed to prepare, put into practice, achieving, reviewing and maintaining the environmental policy "[ISO 14001]

## **2. Environmental management**

In recent decades it can be observed the increased interest of organizations in environmental protection, some organizations introducing in their business strategies environmental protection objectives. Thus we believe that environmental management is present and the future in sustainable development of organizations.

In essence, concern for environmental issues took as its starting point the awareness of the gravity phenomena and environmental protection need. The 70 years is a milestone in this regard, through the emergence of environmental policies. The development of Agenda 21 is the cornerstone of environmental management, the first official framework which encourages governments and other bodies to develop environmental management. "Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment" [UNCED, 1992].

Analysis of the environmental management system is able to penetrate in the essence of the whole ecological issues. On this basis it can be established guidelines, the entire set of ecological-management strategy problems, which would ensure greater effectiveness of environmental management.

Environmental management, viewed as a coherent set of subsystems that are intertwined and condition, justifies its usefulness in environmental management systems through how the results of its responsible economic and social order, both quantitatively and qualitatively. (Ion, 2005)

One of the models for transposition of the principle: "It is better to prevent than cure", in the environmental management, was proposed by W.E Deming and has established itself as the 'Deming's wheel "or" Deming circle ". The Deming is a cyclical and dynamic model based on four steps:

- plan;
- do;
- check;
- act.

**Figure 1. Deming circle**



Source: Deming Institute

Introduction of the Deming revolutionized management thinking hastening the transition from a traditional management characterized by a static approach, "what?", "Wait and see what happens" at a systemic management, characterized by a dynamic approach, type "What & Why?" pursuing continuous improvement.

### **3. ISO 140001**

An environmental management system can be viewed as a guide for how organizations should manage social and environmental issues. By using environmental management system as a management tool, organizations can manage their environmental problems, reduce waste and reduce their impact on the environment. Main objectives of the environmental management system are compliance with environmental regulations and pollution prevention. An environmental management system is an important part of sustainable development which much international organizations supports and encourages

These environmental management systems help organizations to reduce environmental impact. Whether discussing a development of a product, process or service by adopting a system of environmental management organization will strive to reduce the need for resources (water, electricity and raw materials) while reducing the amount of waste and air, land and water pollution.

Implementation of the environmental management it is achieved in a not very short time horizon, most often up to a year and involves all members of the organization. First of all organization leaders formulate environmental policy that will cover the entire organization. The next step, before everything is implemented, verified, reviewed and audited for certification, will consist of awareness and staff training in order to acquire new skills related to environmental protection.

Environmental management system (EMS) should provide all details necessary to assess the environmental impact of all processes and procedures, so to facilitate: decision making, strategic projections development of design, processing, packaging, distribution and marketing concepts, without negative effects on the environment. In this regard, along with EMS there is now a comprehensive set of management tools that helps solve environmental problems in compliance with the requirements of sustainable development.

Environmental management systems can be designed using the international standard ISO 14001 and Regulation EC 1221/2009 known also as the EMAS.

Voluntary self-regulatory initiatives such as the eco-management and audit scheme (EMAS) and the international environmental management system (EMS) standard ISO 14001 seek to provide all businesses with the means to develop systematic approaches to improve environmental performance [Ruth, 2004].

ISO 14001 is an environmental management standard created by the International Organization for Standardization (ISO) in September 1996 which establish an worldwide environmental management system, with the aim of self-assessment or certification. "The ISO 14000 standard actually comes from a previous norm BS 7750 'Specification for Environmental Management", which dates from 1992 and has had some success worldwide, and is still used by some companies "[Centrul de informare EMAS].

ISO 14001 takes some basic principles of ISO 9000, namely planning model Plan-Do-Check-Act. The model is based on the 17 points of quality control system. The main chapter headings: policy, action planning, environmental management programs, introduction and operation, control and revision activities, all in the spirit of continuous improvement. The standard don't establish nothing related to environmental performance than absolute dedication to environmental protection, compliance and continuous improvement principle" [Fundatia Parteneriat, 2003]

Implementation within the firms of an environmental management system ISO 14001 or EMAS is in fact the principal way to introduce an integrated approach of all aspects related to sustainable development.[Burja, 2012].

ISO 14001 is now implemented by companies worldwide. It specifies requirements for an environmental management system to enable an organization to formulate a policy and environmental objectives taking into account legal requirements and significant environmental impacts. It applies to all environmental aspects that the organization can control and influence.

This international standard is applicable to any organization that is willing to:

- Implement, maintain and improve an environmental management system;
- To ensure compliance with its stated environmental policy;
- Demonstrate such compliance to others;
- Obtain certification / registration of environmental management system;
- On its own initiative to make a self-declaration of compliance with this standard.

To implement ISO 14001 in an organization must be fulfilled five stages:

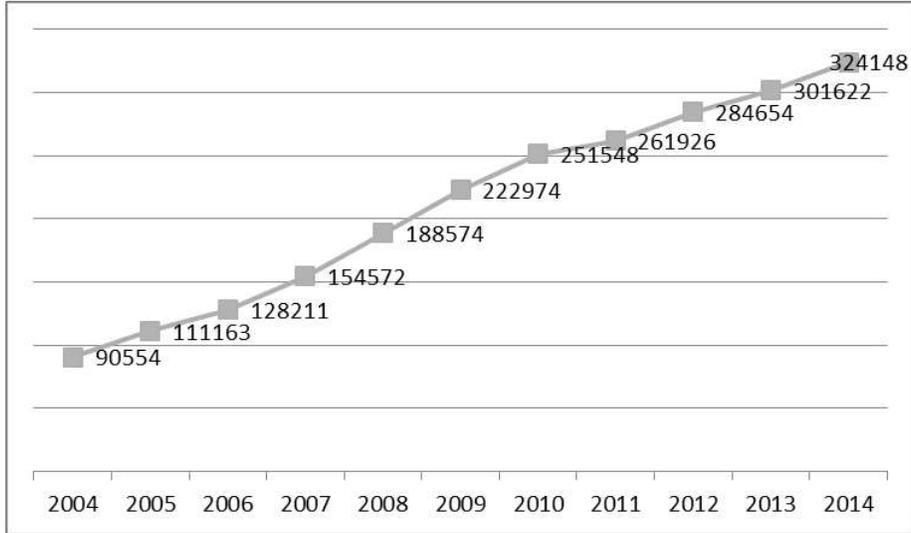
1. Establishing environmental policy;
2. Planning;
3. Implementing of environmental management and operation;
4. Check and corrective actions ;
- 5 Analyses by management

All requirements of this international standard are intended to be incorporated within any environmental management system. The application extending will depend on such factors like the environmental policy of the organization, the nature of its activities and the conditions in which it operates.

Realizing the benefits of the EMS implementation, the organizations have increasingly allocated more financial, human and material resources, for building such a management system. This is why we are witnessing an increasing number of certifications at an impressive pace, and the main reason being the desire of organizations to increase their environmental performance. ISO 14001 is becoming the dominant international standard for assessing environmental management processes and in Europe many firms are also registering their EMS according to the Eco-Management and Audit Scheme (EMAS)[Morrow, Rondinelli, 2002].

As it can be seen in Figure 2, in 2014 the number of certifications worldwide has increased since 2013 by over 7.5% and compared to 2004 by over 250%.

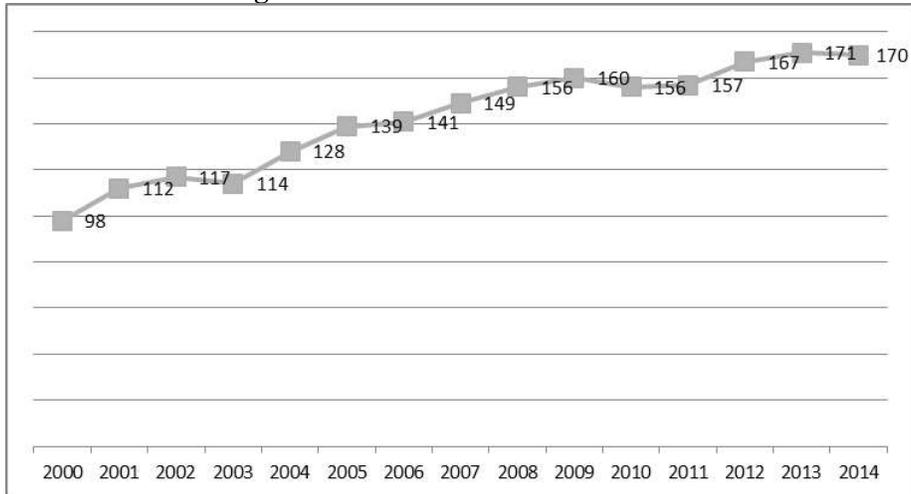
**Figure 2. Evolution of the ISO 14001 number of certifications worldwide**



Source: ISO Survey, ISO 2015

Also, has increased the number of countries in which are registered certifications of EMS. If in 2000 there were 98 countries with certified organizations at the level of 2014 there are 170 countries whose organizations have a certified EMS.

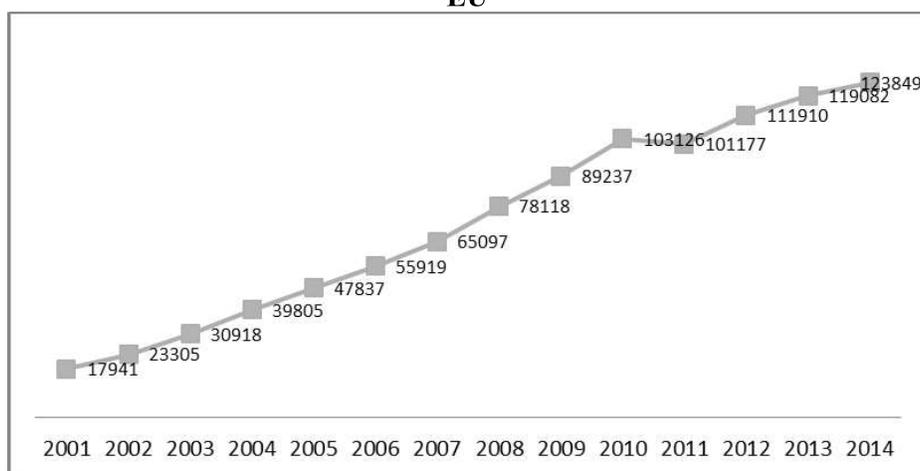
**Figure 3. Evolution of the number of countries in which are registered certifications of ISO 14001**



Source: ISO Survey, ISO 2015

Worldwide, in 2012, the largest number of certifications is recorded in China (117 758), second place are Italy (27 178) and ends with the podium Japan (23753). At European level the number of ISO 14001 certifications has increased from 17941 in 2001-123849.

**Figure 4. Evolution of the ISO 14001 certifications in EU**



Source: ISO Survey, ISO 2015

Most certifications are recorded in Italy (27 178), followed by the UK (16 685), Spain (13869) and Romania (9302).

**Table 1. Top 10 EU countries with ISO 14001 certifications**

No.	Country	Number of certifications
1.	Italy	27178
2.	UK	16685
3.	Spain	13869
4.	Romania	9302
5.	France	8306
6.	Germany	7708
7.	Czech Republic	5831
8.	Sweden	3990
9.	Helvetia	2952
10.	Holland	2411

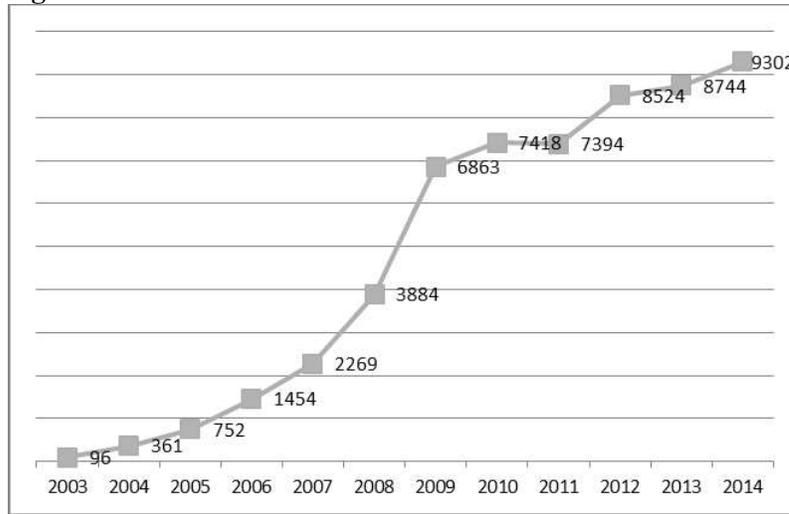
Source: ISO Survey, ISO 2015

A lot of companies in Romania have invested time, effort and resources in environmental activities that European organizations already

have made in the last decade. Some of them already have an environmental management system, others are far to introduce one, while some companies will introduce an environmental management system at the time when it will become a matter of survival.

In Romania the number of companies certified ISO 14001 thundering increased from 96 in 2003 to 9302 certified companies in 2014. The main reasons for this increase were the EU accession, the opportunity to conclude favorable contracts with foreign organizations, accessing external development funds or increase exports.

**Figure 5. Evolution of the ISO 14001 certifications in Romania**



Given the above and the fact that Romania still makes progress in raising environmental performance, we believe that environmental protection should be a priority for all Romanian organizations.

#### 4. Conclusions

Environment and its condition is one of the major problems of humanity and, therefore, it always must be in the individual but also human communities' attention. More efficient than the corrective approach, designed to solve effects, it proves to be the preventive approach of the environmental issues, aimed at eliminating the causes

When environmental issues have begun to receive significant attention, a number of bodies and organizations have realized the need to develop management systems to correct, to plan and monitor the impact of environmental organizations. Effective control of pollution cannot be achieved by technological solutions, it needs to be approached as an

integrated EMS overall management of the organization. EMS is a tool for identifying, resolving, correction and control of environmental activities in an organization that can be implemented in different ways from one entity correlated with specific conditions. One of the most important families of standards is developed ISO 14000 standards on general environmental management systems designed to control the processes impact the organization overall environment.

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