



Sustainable Economic Development through Environmental Management Systems Implementation

Mădălina Giorgiana Mangra¹, Elena Antoanela Cotoc², Aurelia Traistaru²

¹Lecturer, Ph.D., University of Craiova, Romania

²Matei Basarab High School, Craiova, Romania

Corresponding author: Aurelia Traistaru, Matei Basarab High School, Craiova, Romania

Abstract. Environmental Management protects valuable environmental assets, manages local areas on the most suitable way and develops relationships between people and the natural environment. Organizations are increasingly concerned to achieve and demonstrate environmental performance, controlling their activities, products or services on the environment. These issues are enrolled in the legislation context more and more stringent, of the development of economic policies and other measures designed to encourage environmental protection, increase business concern on environmental issues, including sustainable economic development.

Thus, the complex systems of the integrated management (environmental, quality, security, energy) provide the circumstance for continuous improvement of industrial performance, including product quality and prevention and reducing environmental pollution.

EMS implementation requires a thorough regard of some phases (stages) characteristic of the environmental analysis performed by an organization. The 19 stages of EMS implementation outline the steps that the organization follows to develop an effective environmental policy.

Keywords: environmental management systems, sustainable economic development, the phases of EMS implementation

JEL: O1, Q01

1. Introduction

Integrated environmental management poses as objective the approach in the global context of the economic unit relations with the environment, having as final purpose the reduction of the negative effects of human activities on the environment and environmental protection requirements specific to all sectors of economic activity. Environmental management systems aim also towards the protection of the product, consumer and staff involved in manufacturing (Kramer, Hohan, Balaban, Diaconu & Albu, 2004).

Implementation of an environmental management system is just one of the ways to ensure the sustainability of economic activity, but there are also other concepts that can be applied in conjunction with environmental management systems, such as:

- products designing for the environment, considering their life cycle assessment;
- accounting of environmental costs;
- complex systems of integrated management (environment-quality, environment-energy, security- environment);
- eco-marking of the products.

According to ISO 14001, an environmental management system is a component of the overall management system which includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementation, achieving, reviewing and maintaining the environmental policy (Ghid, 2003; Ghid, 2012).

In many countries, environmental management systems implementation, although a voluntary action, managed to convince, not only through the financial benefits obtained (identifying areas that can lead to savings, increasing production efficiency, finding new markets), but also by increasing credibility obtaining bank loans, to attract investors and beneficiaries.

2. Approaches and phases

Environmental management aims to responsible using of the natural, economic and human resources so that the environment would be protected and improved. Today environmental management objectives are: ensuring the fundamental principles of sustainable development that seek to put in the place of economies the environment for these and the future generations (Vlăduțescu, 2004a; Vlăduțescu, 2004b; Vlăduțescu, 2006).

Environmental issues have come to affect the whole humanity. Therefore one of the major challenges of the times today is about effectively countering the harmful effects produced so far, but most of all about the prevention of the possibility that the nature be affected in the future.

Effective management of environmental issues takes place within an increasingly complex circumstance (legal, economic, human), where the expectations of customers and the general public are numerous and diverse: ecological products / services, low contamination risk, minimum investment with high throughput to pollution.

In recent years environmental issues gained importance, particularly with regard to the sustainable development. If from the economic point of view the products are intended to be of higher quality, from the point of view of environmental protection it is desirable that the manufacturing process not to affect the environment. In other words, it is required that production technologies be ecological, and products be "clean" ("green products").

Global problems of world are closely related to environmental issues, and the setting of ecological limits between which the performing of economic activity and the development of national and international regulations in this respect may take place, have gained a great importance especially in the last two decades. The main mutation that must occur in the minds of people today is that of the substitution of immediate economic interest, and of the concept of heritage preservation interest to the future generations (Mangra, Stanciu & Mangra, 2010; Vlăduțescu, 2013d)).

Sustainable development requires that the society should satisfy consumer demand of its members by increasing the productive potential, but also by creating some equitable access conditions to natural resources for all members of society. Environmental Protection Law 137/1995, 2000 defines the concept of sustainable development as being development that meets present needs without compromising the ability of future generations to satisfy theirs (Kramer, Hohan, Balaban, Diaconu & Albu, 2004).

In other words, a sustainable development is an economic development without depletion of resources (Strechie, 2010), exceeding the limit of affordability and regeneration of the ecosystems.

The minimum requirements for achieving sustainable development are:

- resizing of the economic growth;
- elimination of the poverty;
- control of the population growth;
- preservation and enhancement of the natural resources;
- control of the risks;
- participation of the forms of government to making decisions regarding the environmental protection;
- bridging decisions regarding environment and development at the national with the international level.

By respecting the principle of sustainable development an economic, environmental and social development is ensured in a perfect and permanent balance, which, if it is not carried out, leads to the disturbance of the steady state occurring on the environment, economic decline and social disruption (Pârvu, 2001; Băndoi & Tomiță, 2009; Vlăduțescu, 2013c).

The strategies of integrated environmental management and sustainable development present common aspects in approaching environmental protection (Sirbu, Doinea & Mangra, 2009). The practical way of achieving sustainable development is to reduce emissions linked to the application (implementation) of systems of the integrated production management.

Therefore, the scheduling of the environment management system in order to ensure sustainable development involves the following phases:

Phase 1: Developing of an environmental policy for a society or an organization.

Environmental policy is a public document prepared by the society in which its commitments regarding the environment are described (Mangra, Daea & Stanciu, 2010). This written commitment by management should relate to:

- Compliance with environmental legislation.
- Development of the environmental performance beyond legal requirements.
- Controlling and monitoring of the activities of the critical analysis of the impact on environment.
- Necessary measures to reduce, prevent or eliminate the pollution and pressures on environment.
- Preliminary assessment of impacts on environment of the activities and new products.
- Prevention and reduction of risks resulting from emissions of the pollutant in the accident case.
- Periodically comparing of the action plan with the environmental policy.
- Systematically pursuit of the objectives and setting of the targets.
- Cooperation with public authorities to reduce environmental risks and to minimize the impact of any incidents using appropriate technologies.
- Increase awareness and employee involvement.
- Providing to customers all information regarding to the environmental aspects of products and services.
- Obtaining the agreement by representatives to support compliance with your standards and procedures.
- Providing the comprehensive information to the public and opening of a dialogue about the environmental impacts of your company and any external complains.

Phase 2: Analysis of the most significant impacts on environment of the organization activity.

The most important phase in the implementation of an EMS is, probably the initial environmental analysis (Mangra & Stanciu, 2008; Țenescu, 2009)). This is a systematic and comprehensive evaluation in accordance with ecological criteria of the certain aspects of the business. This will provide the basis for a comprehensive environmental action plan, with objectives and clear targets (Iacob, 2008; Vlăduțescu, 2013b).

This initial inventory includes:

- significant environmental issues associated with the products and / or services.
- relevant legal and regulatory obligations.
- All environmental practices and procedures regarding environment already applied.
- Evaluation of the results investigations regarding previous incidents.
- Complains from stakeholders regarding the activities of the company.

Phase 3: Maintaining the information regarding legal obligations.

An EMS is useful to better fulfill legal obligations regarding the activities of the organization and to allow the up to date information and in accordance with environmental legislation. In case of failure, corrective actions should be taken to remedy the situation (Siminică, 2008; Siminică, Berceanu & CIRCUMARU, 2008).

Phase 4: Setting environmental objectives and clear targets.

The objectives arise from the environmental policy. An environmental objective is a precise step, quantified to achieve the set targets. Objectives and targets of an environmental management system have to be periodically described, communicated and updated. They should reflect the environmental policy, including the concept of pollution prevention.

Phase 5: Determine environmental program: who does what, when, how, for what purpose and in what time?

An environmental management program consists of a series of goals and objectives developed to improve the environmental performance of the organization. This is a comprehensive work plan that reflects the environmental policy of the organization in daily practice. The program identifies responsibilities and means of achieving the set objectives and targets in due time. The program is used to integrate environmental protection in everyday life of the organization (Tenescu, 2011).

Phase 6: Structure and responsibility

An environmental management system, even informally applied, must be structured anyway. Someone must be responsible for coordinating and should appoint persons to whom to delegate different responsibilities, so that everyone knows what to do. It is vital for the effectiveness of the system to accurately identify those responsible, the time and means for each task.

Phase 7: Environmental awareness and training.

Regardless of the size of the organization, the activities of every employee have an impact on the environment. He or she can contribute positively to it, coming up with new ideas, changing attitudes and involving other people (Pedler, Burgoyne & Boydell, 2004; Siminica, Circiumaru & Simion, 2012). This requires information, training and learning new skills. An EMS requires an estimation of the requirements and organizes training courses for:

- People involved in the management system and program.
- Persons performing a service that has an impact on the environment.
- Introduction of a new production process or new products.

Phase 8: Internal Communication.

Communication is the element able to motivate the majority of stakeholders in an environmental management system. Without communication nothing develops. The internal communication means not only a set of messages and documents designated to staff, or messages from the executive group management and workers, such as environmental policy, its objectives and targets (Dima & Vlăduțescu, 2012a; Vlăduțescu, 2012b).

Phase 9: Objective evidence: documentation for an environmental management system. Documentation consists in the preparing of a memorandum concerning the internal history of the organization and it constitutes the evidence of the management system's performance (Dima, Grabara & Vlăduțescu, 2012). It will be suitable, well organized and efficient on paper or electronically. This report will contain:

1. A written copy of the environment policy.
2. The register with the aspects and the impacts of the company on the environment, the program of the environment management and the allocation of different responsibilities (Nowicka-Scowron, Dima & Vlăduțescu, 2012).
3. Work instructions and procedures that define interest areas of environmental in the program.

Phase 10: Management Documentation

Documentation organizing must be performed to ensure the use of all of the respective working papers. The main objective is to know in advance all the latest data available and important to remove obsolete information, in order to facilitate a regular basis, management system (Smarandache & Vlăduțescu, 2013).

Phase 11: Putting on paper experience: operational control

Operational control consists of a set of procedures that an organization follows him to protect the environment. It is the central part of the environmental management system. This contributes to the environmental objectives and targets achieving to make them in accordance with environmental legislation. A procedure may consist of an icon or a simple description of the tasks and a detailed report with specific indications for subcontractors. These procedures are addressed to all staff (Zipkin, 2000; Tanasie, Tanasie & Fratostiteanu, 2008; Vlăduțescu & Ciupercă, 2013).

Phase 12: Analysis of the emergency

Serious accidents can cause damage to the environment, health and protection of workers and, also the neighboring population (Tomiță & Ciurlău, 2001;

Gruescu, Nanu & Tanasie, 2009). They may have large economic impacts on the organization. Prevention program is based on:

1. Identification of the potential accidents and emergency situations.
2. Preventing of the accidents (isolation of the toxic materials, anti-slip flooring).
3. Emergency plans and procedures, simulations, etc.
4. Regular tests to check if plans and procedures are functioning properly.
5. Experience of the suffered accidents.

Phase 13: Monitoring and measurement

EMS central phase is useful to track the environmental progress and objectives and targets and ensures compliance with legislation. Measurement and continuous monitoring are useful:

- For more information regarding the types of requests made by public authorities - in order to enable continuous monitoring of resource
- In order to compare the quality of the environment management of the location over the years
- In order to inform properly employees about the company's environmental performance
- To check the continuous improvement of environmental management through simple performance indicators
- To engage the financial management in the environment process and to measure the impact on environment
- In order to simulate different scenarios in case of replacement in the products or the production processes.

Phase 14: Non-conformance, corrective and preventive actions

In case of problems the following steps are performed:

1. Examine the problem
2. Identify the causes
3. It is sought for a different approach to find a solution (corrective action)

4. Note is taken of the performed operation and it is controlled the regulation.

In this way, a corrective action becomes a quick and appropriate response to a problem. This will allow the reduction of the negative effects and avoiding that a problem happens again in the future. To ensure that the problem will not happen again is a preventive action (Traistaru, 2013a; Traistaru, 2013b; Vlăduțescu, 2013e).

Phase 15: Records

The records are evidence of the existence of the environmental management system for the outside world. Implementation of EMS generates and accumulates a lot of new useful information regarding energy, waste, using of the resources and efforts of the every day. All information should be correctly recorded in writing and must be precise, simple and easy to understand (Berceanu, 2006; Mangra, Mangra & Stanciu, 2009).

Phase 16: Environmental Management System Audit

Internal audit consist of a periodic assessment of the efficiency of the environment management and how environmental performance are achieved. This allows monitoring with observing of the EMAS compliance. Internal audits are necessary because they is an opportunity to register the situation and are vital to continuous improvement of environmental performance. Internal audit is the mean by which the society is able to determine, either alone, or with outside help, if the system works correctly.

Phase 17: Reconsidering the direction

Reanalysis of the direction is important to keep the system in the right direction. Once a year the results of internal audits, measurements and other useful information will be included in the future environmental strategy and in the later program of the management system (Mangra, Daea & Stanciu, 2009; Tomita, Danciulescu & Bandoi, 2008).

Phase 18: External communication or environmental records with checked information. Information dissemination related to environmental benefits adds considerable value and improves the organization's image in the market. The fact

that this information is reliable and can be verified, will lead to appreciation of customers, suppliers, public authorities, employees and local communities.

Phase 19: Independent verification is validated by the very environmental management system and the reported information.

When environmental management system has matured, an accredited environmental verifier is invited to validate environmental information to provide a critical point of view on reality and the performance of the environmental management system (Cotoc, Traistaru & Stoica, 2013; Traistaru, 2013c). This operation gives credibility to the management system. Verifiers are special environmental auditors. They are accredited and controlled by the state or other public or private institutions. Supervision is carried out by the public authorities. Verifiers may be individuals or organizations.

3. Conclusion

Adoption and implementation in a systematic way an assembly of techniques for environmental management in accordance with ISO 14000 can contribute to obtain some optimal results in favor of the company. Already at the end of 2000 in 76 countries in the world were certified / registered as ISO 14001, ISO 13368 World societies.

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