

## THE ENVIRONMENTAL IMPACT REFLECTED IN THE ACCOUNTING AND CALCULATION OF COSTS, THE RESULT OF AUDITING AND CERTIFICATION OF ENVIRONMENTAL INFORMATION

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**ABSTRACT:** *The environmental impact is a key factor in carrying out the activity of the economic entity, it is evaluated and reflected based on the activity of the environmental audit and it represents the foundation of the implementation and development of environmental policies at microeconomic and macroeconomic level. In this regard, the audit of environmental risks at the business economic entity level will highlight the efficiency of the management process, outlining a managerial process based on reducing the environmental footprint, while highlighting the evolution of methods from a scientific point of view by disseminating the results of the environmental audit, thus discovering improved methods that will be used in the future for environmental impact assessment and implicitly will increase the degree of the methods' validity. The purpose of this paper is to highlight the importance of acknowledging the impact that any activity carried out by the legal entity has on the environment and to stress the need for the environmental audit at microeconomic level, as a macroeconomic basis for respecting and improving environmental policies.*

**Keywords:** environmental audit, environmental costs, eco-efficiency, environmental degradation, environmental impact, environmental policies, environmental risk.

**JEL Classification:** Q51, Q53, O10, O13

### INTRODUCTION

Considering the environmental impact as a key factor of sustainable development, it has become a topic of news and public interest. Thus, the relationship between the economic activity and the surrounding environment is intended to be constantly quantified and improved, considering the current deterioration of the environment due to the inadequate exploitation of the non-renewable resources (Coman, M. D., et. all, 2019). The environmental accounting, mainly outlined in the 21st century, aims to restore the balance between man and nature, respectively economic activity and natural resources. It provides modern methods of analysis and evaluation, constantly refined and which supports reducing the impact on the environment (United Nations Department of Economic and Social Affairs, 2010).

In Romania, the European Commission launched in May 2016 a review of the implementation of environmental policies, which implies their constant monitoring over two years and aligning national legislation with current EU standards. Thus, reports were elaborated describing the opportunities for implementation, stimulating the implementation of current policies by filling key gaps in implementation. Although they are a solid support, these reports will not replace the specific instruments that ensure compliance with the legal obligations established by the European Union. The premise of sustainable development remains the balance between the environmental infrastructure and the performance of the economic entities activity, based on the implementation and observance of the specific policies of the economic activity carried out. The assessment of environmental performance

will be based on the principles of environmental management and its instruments, the evaluator's ability to understand the use of preventive, controlling and pollution reduction measures at the organizational level, as well as the legal basis of environmental protection that the legal entity is basing their activity on. (Rojanschi, Grigore, Ciomoş, 2008)

## **1. ENVIRONMENTAL AUDIT – ENVIRONMENTAL MANAGEMENT SYSTEMS**

The environmental audit is defined by the British Industry Confederation as a systematic examination of the interdependence between economic operations and the environment, including the way in which the local community perceives the activity of the economic entity and the effects that the activity has on the neighbouring areas, emissions in soil, air and water. Regarding the content of the term environmental audit, World Centre for Environmental Enterprises defined it as a management tool. The World Centre management team run by Jaques Salamiou will also establish at that time the activities prior to the audit, the audit itself, as well as the post-audit activities. In 1996 the International Organization for Standardization (ISO) publishes a guide that standardises the principles based on which the environmental audit can be carried out. The standards refer to general principles and procedures for auditing, as well as the classification criteria of auditors.

The environmental impact assessment audit (EIA) involves comparing predictions with the actual impact, thus two objectives are outlined, one of a managerial nature, which will help make future decisions more efficient on the topic of reducing the impact on the environment, which implies the use of a responsible management strategies. The second objective is a scientific one, which will disseminate the results of the predictions and will elaborate explanations of the errors, leading to the improvement of the methods used in the future environmental impact assessments and increasing their validity. The audit activity has undergone changes over time, from a thorough verification of transactions in order to identify possible frauds, to verification through survey, with the purpose of helping the auditor form an opinion on whereas the environmental accounting statements have been drafted in accordance with the legislation in force. The audit paradigm has been modified and the role of the auditor has been redefined. The development of the audit implies, first of all proper preparation from the point of view of the resources, as well as individual recording of each stage of the process in the audit records, it implied also the completion of the research, collection and preliminary analysis of all relevant information from the opening meeting. The timing of the opening session represents also the beginning of the audit activity.

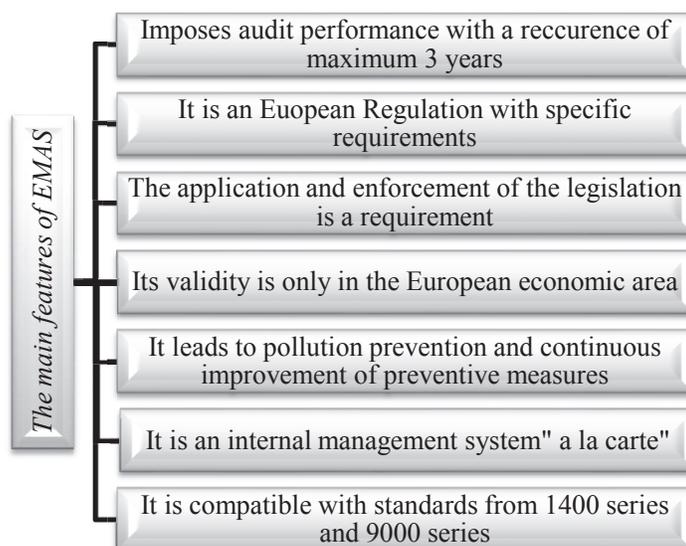
### **1.1. AUDIT OF ENVIRONMENTAL INFORMATION, EMAS AUDIT SYSTEMS**

The procedure for auditing environmental information of a legal entity takes place following the voluntary adherence to a environmental audit community comprised of entities that undertake an activity with a potential impact on the environment, and by aligning to its criteria and requirements, in order to continuously improve the policies and measures to protect the environment. By being certified, we understand an action taken by a third party, an accredited certification body, which will establish the compliance of an economic entity with a certain reference standard, under which this procedure is carried out.

The most common system at European level is EMAS (Eco-Management and Audit Scheme), created and promoted since 1993 by adopting the Council Regulation no.1836/93 (EMAS I) which allows the adherence of all entities under industrial sector that perform economic activities inside European Union. So far, it has been improved and adapted to all economic sectors, including private or public services, and the interest of the entities has increased exponentially.

At national level, the interest for EMAS has been noticed since 2001, regulated by the order of the central environmental authority no.50 / 14.01.2004, thus marking the beginning of active involvement in the responsible analysis of the impact of economic activities on the environment. The main features of the regulations are the advantages of implementing an environmental audit system (Fig.1).

Figure 1. The main features of EMAS



(source: processing after: Decision (EU) 2285/2017)

EU Member States have the obligation to set up specialist teams, at a national level, with the responsibility of choosing auditors authorized of conducting environmental audit. All the applicant entities of the EMAS system benefit from the right to use the Eco-audit declaration, representing a symbol of notoriety and prestige of being an eco-friendly entity in the market in which they operate. In order to obtain the Eco-audit mark, the entity will prepare an in-depth preliminary analysis of the current environmental performance and the activity carried out in a delimited area (Macoveanu, Ciubotă-Roșie, 2008).

In order to prepare the environmental analysis, the economic entities must identify the environmental aspects that result from the manufacturing processes, their activities or services and establish the criteria for evaluating their importance. Gathering relevant information for environmental analysis involves: researching the sites to verify both the contribution and the results; collecting location related photos and maps; identifying applicable environmental legislation; collecting and verifying authorizations, licenses and other similar environmental documents; control of all sources of information; identifying of the persons involved; requesting information from subcontractors that can have a significant influence on the environmental performance of an economic entity; identifying activities that generate environmental risks. The assessment of an environmental aspect implies the respect of the following criteria: the potential to cause environmental damage; local, regional, global environmental fragility; size, number, frequency as well as reversibility of aspects or impact; relevant environmental legislation; the degree of importance determined by the stakeholders.

## 1.2. The stages required to participate in the EMAS system

In order to correctly implement within the economic entity an environmental management system, which is to be reflected in its accounting, the following steps will be taken:

1. *Environmental analysis* - involves the elaboration of an in-depth analysis on environmental aspects such as: consumption of raw materials, energy, water, atmospheric emissions, waste production, etc., impact on the environment and environmental performance arising from the activities performed of an economic entity (Ionescu, C.A., 2017).

2. *The direct and indirect environmental aspects* must be taken into account in the environmental analysis. Direct environmental aspects are aspects associated with activities, products or services of the economic entity, over which it exercises direct administrative control. Indirect

environmental aspects are aspects that can result from the interaction between the economic entity and third parties and which can be significantly influenced by an economic entity.

3. *The environmental management system* is an important component of the general management system, which includes the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources necessary for the development, implementation, and evaluation, maintenance of environmental policy and management of environmental issues. The economic entity must implement, document, apply and maintain an environmental management system in accordance with ISO 14001 standard.

4. *Environmental statement* - represents the detailed information that is provided to the public as well as to interested third parties regarding the structure and activities of an organization, its environmental policy and its environmental management system, its specific environmental aspects and environmental impacts; its environmental program, as well as its environmental goals and targets; the environmental performance of the organization and compliance with the legal obligations applicable to the environment.

5. *Verification and validation procedure* - verification: represents the conformity assessment process carried out by an environmental verifier to demonstrate whether the environmental analysis, environmental policy, environmental management system and internal environmental audit as well its implementation meet the requirements of this regulation; validation involves confirmation by the environmental verifier who performed the verification that the information and data contained in an organization's environmental statement and updated environmental statement are reliable, credible and accurate and that they meet the requirements of the regulation.

## 2. TYPES OF ENVIRONMENTAL COSTS

Environmental accounting is limited by structural elements that aim to obtain two types of benefits derived from the costs for environmental protection during the activity of the entity. Environmental protection costs are defined by all investments and expenses related to the prevention, reduction or even elimination of the impact on the environment, as well as the possible costs of reconstruction of an area affected by the impact of the activity that an entity carries out, expressed in monetary value and reflected in the accounting of the economic entity. These amounts will be allocated for a fixed period, with the sole purpose of protecting the environment. The benefits resulting from these investments may be analysed based on several successive periods, recorded in the entity's expenses, during the period of their amortization.

The National Institute of Statistics (INS) of Romania defines environmental expenditure as the financial flow allocated by the economic entity with the purpose of reducing, preventing and combating the damages caused to the environment. The purpose of these expenditures by the economic entities is to develop a win-win relationship, entity-environment, considering the reduction of pollutant emissions in the ground and surface waters, the selective collection of waste and their disposal, a key factor of the sustainable development. At the same time, environmental protection offers financing options for the economic entity dependent on variables. At the same time environmental expenses are integrated parts of the general expenses of the economic entity and represent depreciable assets that serve as environmental protection as its main purpose. When these assets are purchased, they will be recorded as fixed assets for environmental conservation and classified at the investment value. Their reporting will not only be calculated for the fiscal year of acquisition, but by adding to the cost of acquisition, the cost related to their operating period. Thus, the full cost of the assets required for environmental protection will be included in the accounting table. Within economic entities, environmental costs can be classified based on different criteria, as follows: pollution prevention costs, environmental conservation costs, recycling costs, research costs, innovation in the field of environmental protection, etc. as detailed in Fig. 2. In this sense, different environmental costs reflected at the level of an economic entity can be detailed.

Cost classification for EMA according to the International Federation of Accountants:

- finished products material costs - include the replacement of raw materials or natural resources, such as water and other materials that are transformed into products, by-products and packaging;
- non-product production costs of materials - include the cost of purchasing (and sometimes processing) energy, water and other materials that become non-products (waste and emissions);
- waste and emission control costs - include costs for: handling, processing and disposal of waste and emissions, remediation and compensation costs related to environmental damage, any control costs to achieve compliance required by current regulations;
- prevention and other environmental management costs - includes the costs of the preventive activities of managing the entity-environment relationship, such as organic production projects, as well as the costs for other environmental management activities, such as planning, measuring the environment, environmental related press releases and any other relevant activities;
- research and development costs - include the costs for research and development projects related to environmental problems;
- Intangible costs - include both internal and external costs, such as: responsibility, future regulations, productivity, the image of the economic entity, its relations with stakeholders and third parties.

Figure 2. Typology of environmental costs



(Source: edited after: "Environmental Accounting Guidelines", Ministry of the Environment Japan (2005), available on-line at <https://www.env.go.jp/en/policy/ssee/eag05.pdf>)

The environmental costs of an economic entity represent the expenses incurred in order to decontaminate the lands, to optimize the technologies of control of waste disposal activities. These have an impact on both the managerial accounting (the assessment of the costs of an organization for pollution control equipment, the gains from recycled materials, the annual monetary savings from new energy efficient equipment) and the financial accounting (evaluation and reporting of environmental protection obligations). Environmental protection expenditures include all expenditures for environmental protection measures of an economic entity or on its behalf for the prevention, reduction, control and documentation of environmental issues, impacts and risks, as well as the costs of eliminating and

correcting them. The value of the expenses for the protection of the environment is not directly related to the ecological performance of an economic entity.

In order to evaluate the annual environmental costs, as a basis for future calculations and decisions, it is necessary to quantify the costs of the waste resulting from the production process, capital and labour. Waste, in this context, is used as a general term for solid waste, wastewater and atmospheric emissions and, therefore, encompasses all production that has not been found in products. As a rule, the environmental costs reflected in the accounting of the economic entity are those directly associated with the environment, but in this category of costs also fall those of the so-called "grey area", which are only partially ecological, bearing the name of complex costs. The calculation of these costs will be done by choosing a regulated method, the choice being taken at the discretion of the entity. For example, the differentiation of the aggregation, where the environmental cost is deducted, and the difference represents other costs or in cases where the allocation is not deductible, determining methods will be used considering the environmental activity undertaken, its characteristics and impact.

### 3. ENVIRONMENTAL RISK MANAGEMENT

The environmental risk management aims to determine the degree of risk specific to the activity undertaken by an economic entity in relation to the environment. This is done in order to determine later how to manage this risk in the most appropriate way in order to protect human health and the environment, but especially to resort to the conservation of non-renewable resources. The environmental pollution factors are represented by the sources of risk which are different, depending on the activity of the economic entity, but similarly defined depending on the level of toxicity and the danger it generates. The classification of these sources cannot be made in relation to the quantity of the substance, but only according to the degree of pollution. For example, we may have to deal with a small amount of substance that has a high level of toxicity or a larger amount of substance with a low level of toxicity, which can equally affect the environment.

In order to adopt and implement the risk management, the economic entity will use control mechanisms, which will act based on the previous consequences and expected outcomes of the risk sources. Such mechanisms will target the production unit, the storage and retail spaces, all departments of the economic entity depending on the degree of risk they present. In order to act responsibly, it is essential to know the types of risk factors. The first factor is the ecological risk caused by the dangerous substances that will pollute a large area in a very short time. For example, oil extraction has a negative influence on the fauna and flora in the extraction area through chemical pollution of the soil, which will cause its long-term infertility. Another factor is the vulnerability of the receiver to environmental disasters, and this risk factor will increase exponentially when there are more receptors (for example, the emission of industrial pollutants within a metropolis). The development of the risk management process is recurrent, as it can be continuously improved by modifying the analysed criteria or introducing additional risk assessments.

### CONCLUSIONS

According to the presented data, we consider environmental audit as being the accounting and managerial instrument through which the environmental aspects will be evaluated, with the purpose of certifying the information provided. In order to implement the environmental protection measures responsibly and to highlight the environmental costs in the accounting of an economic entity, the first step is the audit. The audit results will influence the activity of each department of the economic entity, providing key information in order to implement the proposed measures.

Analysing the current trend of the economic market, the possibility of quantifying the environmental protection costs according to the activity carried out, represents an added value for the economic entity, not only from a financial point of view, but also of its position on the competitive market. At the same time, environmental protection measures will bring four categories of benefits for the entity, based on the activity-environment relationship. Regardless of the activity category, the entity's assessment will be made based on performance indicators. Thus, the benefit corresponding to the conservation of the

environment will be applied based on the area of activity, implicitly the responsible allocation of resources destined to environmental protection both for the current activity, as well as for research, development, social activities, reconstruction of the areas affected by a possible impact, all aiming the consolidation of undertaken activity-environment relation, by reducing the impact on the environment.

The benefits of environmental protection will be measured within the entity based on: the volume of energy consumed, the change in the quantity of recycled products and packaging, respectively reused during the manufacturing process, the reduction of contaminated areas in the location of activities being carried out in soil, water, air and volume of non-renewable raw materials used. Providing to the accounting department with the results of the information from the environmental audit information of the economic entity will be translated in the complete reflection of the quality improvement and the efficiency of the activity undertaken. Also, the alignment with the current standards imposed by the European community will add value to the decision support information for the entity's management.

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