

# An Assessment Framework of Environmental Management Practices of EMAS Certified Firms

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## ABSTRACT

This article describes how the Environmental Management and Audit Scheme (EMAS) is considered an effective means for firms to address environmental challenges such as wastewater treatment, solid waste management, recycling practices and air emissions control. Many of the present studies have mainly employed statistical and econometric methods to examine the role of EMAS certification, principally to identify potential relationships with economic and innovation parameters. This article aims to contribute to this academic field by analyzing the type of environmental issues addressed by EMAS certified firms. The method of analysis is based on the scoring/ benchmarking techniques for analyzing environmental statements published by EMAS certified firms. An application is made in a sample of EMAS certified Greek firms. The findings show that different environmental management practices have been undertaken by firms of different sectors. In general, the examined firms have focused on energy consumption, water reduction, solid waste management and air emission control issues, with little attention given to biodiversity topics. Finally, the best environmental scores were achieved by the petroleum industry, while the food sector ranked last overall.

## KEYWORDS

Environmental Accounting, Environmental Management Systems (EMS), Environmental Performance, Environmental Statement, Proactive Strategies, Sustainable Development

## 1. INTRODUCTION

EMAS is considered an efficient tool which assists firms in reducing their impacts on the environment. Some essential environmental aspects that are covered through EMAS implementation are wastewater treatment, solid waste management, energy management, biodiversity protection and air emissions control. For the sufficient achievement of corporate environmental goals, the EMAS guidelines offer some certain and essential steps: environmental policy, environmental review, environmental programs, environmental audit, environmental management system, and environmental statement (Strachan, 1999; Jirillo et al., 2003). However, the adoption of an EMAS is associated with various

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costs and benefits. The costs might be the lack of skilled employees and the financial inability to adopt essential technology (Freimann and Schwedes, 2000), while some significant benefits are energy costs savings, improved corporate image and new innovations (Hoffmann et al., 2006).

Many of current studies of EMAS have mainly focused on identifying economic and institutional factors which explain the reasons why firms tend to implement EMAS (Kolln and Prakash, 2002). On the one hand, Bracke et al. (2008) have identified a positive relationship between some financial variables and the decisions of managers to adopt EMAS such as solvency ratio, the share of non-current liabilities, the average labour costs and the absolute company size. On the other hand, a number of authors are convinced that the differing implementation rates of EMAS among member states of the EU is a consequence of institutional context (Franke, 1995; Streger et al., 2002). Some significant institutional weaknesses among member states of the EU are the lack of formal institutions, the limited number of essential rules, the limitations of the present regulative regime and the absence of economic incentives (e.g. subsidies) (Watzold, 2008).

Additionally, a limited number of studies examine the types of environmental aspects that are addressed by EMAS certified firms. Freimann and Schwedes (2000) identify that German EMAS certified firms have focused on issues such as energy savings, waste reduction and wastewater treatment. Priego and Palacios (2008) show that a sample of Spanish hotels improve their environmental status by making progress in various environmental indicators. The most well-known indicators of Spanish hotels are the total amount of consumption, the total fuels and gas consumption, the absolute quantity of water use, the total amount of ordinary waste, and the overall amount of toxic waste. Drawing information from EMAS reports, Erkko et al. (2005) aim to evaluate the level of eco-efficiency of a sample of Finnish firms. Similarly, Nikolaou and Matrakoukas (2016) evaluate the eco-efficiency of EMAS certified Greek firms through EMAS reports. Abeliotis (2006) examine, through a questionnaire survey, some important aspects of the environmental performance (e.g. waste water and solid waste) of some EMAS-certified Greek firms.

Several classical methodologies are employed to analyze EMAS reports which may be classified in two categories: a) questionnaire-based and interview-based studies as well as content analysis of EMAS environmental statements. On the one hand, the questionnaire survey and interview study methodologies drawing information from managers/ owners of firms. They have been criticized because the information drawn is the result of "...the individual perceptions of the respondents and often their answers are weak and are not based on hard facts or data..." (Freimann and Schwedes, 2000: p. 103). On the other hand, there are methodologies which provide scoring and benchmarking systems to evaluate EMAS environmental statements. Actually, these methodologies aim at overcoming the lack of clear and standard ways to record information in EMAS environmental statements (Erkko et al., 2005; Priego and Palacios, 2008). There are many methodologies with different measurement scales and inconsistent and vague ways to quantify each point in the scale. This means that the same (sustainability, CSR and environmental) report might attain a different score by different evaluators even when using the same methodology.

This paper aims at developing a new methodology to evaluate EMAS environmental statements. Specifically, it aims to overcome the above weaknesses by proposing a new scoring/ benchmarking methodology. The methodology proposed is based on GRI guidelines and the sense of current scoring/benchmarking systems. This methodology is based on the reasoning of previous academic works of Mordhard et al. (2001), Skouloudis et al. (2009) and Nikolaou and Tsalis (2013) which are proposed in the field of corporate environmental accounting and corporate environmental management. The proposed methodology analyzes a 5-point scoring technique in order to evaluate the significance of different aspects of the environmental strategy of firms (e.g. air emissions, wastewater strategies, and recycling). An application will be made in a sample of EMAS certified Greek firms of various sectors.

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