

Environmental management systems in Greek Industry

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Abstract: - This paper studies the environmental management systems and especially the European EMAS as an audit and management tool for environmental self-control, focusing on innovation, sustainability and participation issues with respect to water resources protection. A Greek industrial case study is thoroughly examined aiming to pinpoint those aspects particularly interesting not only directly connected to the above subject but also to relevant sectors like the relationships of the company with the public, the environmental awareness of the employees etc .

Key-Words: - Environmental Management Systems, EMAS

1 Introduction

Environmental policy is an area of growing concern in Greece as shown both by the production of numerous regulatory acts and the increasing societal mobilisation during the past ten years.

Greek environmental policy has been so far a hard regulatory one. The overriding characteristic of environmental policy in Greece it is mostly normative, legalistic and compulsory. Despite the formal rigidity, common administrative and societal practice it suggests usually greater flexibility, if not a widespread informal and piecemeal discretion in the policy - making system [1].

But the formal rules and informal values and practices are being actually challenged by two kinds of complementary factors [2]. First, the gradual withdraws from the dominant "command and control approach" at the level of the European environmental policy and the consequent turn towards more mediating and procedural types of regulation [3]. Second, the undergoing changes in the more general administrative, economic and societal models and behaviours at the domestic level as a double consequence of Greece's participation to the EU integration process [2] and of internal reorientation in the Greek government's priorities and aims (e.g. decentralisation, deregulation, privatisation of the public sector, enforcement of civil rights, etc).

2 The European Eco-Management and Audit Scheme (EMAS)

The European Eco-Management and Audit Scheme

(EMAS) is a voluntary management tool for companies and organizations to look up, report and to see into their environmental performance. The scheme has been available for participation by companies since 1995 (Council Regulation (EEC) No 1836/93 of 29 June 1993) and was originally restricted to companies in industrial sectors (public or private sector) [4].

In March 2001, the Council and the European Parliament adopted the revised EMAS Regulation which strengthens and extends the scope of the scheme (Regulation (EC) No 761/2001 of the European Parliament and of the Council of 19 March 2001). The revision included some new parameters like the extension of the scope of EMAS to all sectors of economic activity including local authorities, the integration of ISO 14001 thus giving the principle guideline for the environmental management system, the adoption of a visible and recognizable EMAS logo to allow registered organizations to publicize their participation in system more effectively etc. Clearly, one of the most important elements, which included in the revision, was the parameter about strengthening of the "role of the environmental statement for improving the communication between registered organizations and their stakeholders (actors) and the public" [5].

The role of the stakeholders it is obvious not only in the step of the implementation decision but also at the implementation procedure, especially under the prism of other European pieces of legislation like the Water Framework Directive [6]. The Stakeholders like company's owner, environmental manager, state, neighbours, environmental verifier,

employees etc seem to have a specific role in the EMAS implementation. It is necessary to underline the fact that in every case (country or company) you could find almost the same stakeholders but in different participation or responsibility degree in relative with EMAS procedure.

In general, the owner has the main responsibility for the decision of environmental management system. In most of the cases the owner, with the contribution of environmental manager and sometimes with an external consultant, decided to implement the system. So it is clear that power for the decision derives from "above". In some cases, the owners decide the implementation after the enforcement of the local authority (driving force) or the public pressure. In that case the local factor participated indirectly in the implementation decision. In many cases, although it started from a conflict situation it turned to activate both the local and the company in environmental actions and in new forms of participation (see case study).

Moreover, during the EMAS implementation the companies started collaboration with interest holders (i.e. universities, laboratories, emsnet etc). The EMAS process impelled the companies to be more "open" to the society and to understand the necessity of cooperation with different holders/actors (local, institutions) creating new networks. It should be also mentioned that in revised EMAS (2001) the participation of the public seems to be at the peak of European Union interesting. In other words, they focused on the public participation in order to increase their environmental awareness in different areas, for instance the increase of the environmental consumer conscience, water management, energy saving etc

3 A Greek industrial case study

The environmental audit, as a means to provide continuous environmental performance improvements of industrial activities, was little known in Greece until the entering into force of the EMAS Regulation of the European Union.

This fact had both positive and adverse impacts concerning the implementation of EMAS in Greece (see: [1] and [6]). The institutional and organisational structures were unprepared to comply with the environmental management systems. But on the other hand, it functioned positively for the state and industries, as they could adopt directly the new European standard and avoid difficult and time-consuming changes and interim provisions.

ICR Ioannou is located in the industrial zone of

Inofyta and employs 48 staff. The company specializes in the production of specialized printers (mainly for paper printing) and printer's parts. Since 2000, a second production line operates, producing flexography parts. The exports share a 20% of the total production. Goods are exported mainly in Balkan, Middle East and African countries, while a new strategy is planned, aiming to increase sales in European member states. However, the company estimates that the introduction of its products in Europe is particularly difficult because of the quality competition.

The company since 1995 had realized the necessity of quality and management systems introduction in the site. In this framework the company decided to implement ISO90002 (in 1999). At the same time, the company decided to implement EMAS instead of ISO 14001. The external consultant proposes them the EMAS implementation and the owner accepted it. Also, the owner was influenced by the subsidy of the Ministry of Development for EMS adoption. The support of the consultant was necessary and the co-operation between them has been continued (the company was certified by TUV) during and after the implementation. The external consultant support is essential, as the system is particularly dynamic.

ICR IOANNOY decided to implement EMAS – than ISO14001- because EMAS is a European environmental system and the company intended to 'open' its exports to the European market. Also, the environmental manager thought that this system is more systematic and integrated.

3.1 Innovation

During the EMAS procedure the company developed a new product (parts of flexographies) after some specific changes in the production lines. It is very important to stress that the implementation of EMS helps the company to cooperate with a significant foreign company in order to import raw material. The foreign company has introduced environmental criteria to the choice of their consumer. In this framework the ICR IOANNOY had an "extra-advantage" and this helped them to start a new product line (2nd line – part of flexography).

Moreover, each phase of the production is controlled by sophisticated computer software (MRP), although the monitoring doesn't apply to all stages yet.

It is important to stress that the ICR IOANNOY is a company, which has high technology equipment. More specific, the owner had adopted an

internal strategy in order to use mainly high technological mechanism in the production. In this framework most of the company's equipment was very new, with lot of capacities. This technological advanced equipment and the owner persists in the continual improvement of technological knowledge and infrastructure enforced through the EMAS procedure. During the implementation of EMAS the equipment was tested in order to reach maximum productivity.

The implementation of EMS assists the company to have more flexible structure and rational responsibilities division. The first positive element that they have noticed –after the EMS implementation- is the 'good house keeping' in the site. The employees and the environmental manager managed to cooperate and to organize all their activities rationally. The environmental management system helped them not only to the environmental issues but more or less in the most of their responsibilities, in combination with the future plans of company for integration of its policies in total quality management. For the present, they organize their company's structure through separate systems like EMS, ISO 9001 and through fragmentary politics for health and safety. The company has organized systematic strategies for employee's health protection'.

In the future the company plans to organize a separate department in the site, for environmental and quality issues. Through this, they believe that will manage to monitor and audit these issues more rational and systematic.

3.2 Sustainability

ICR IOANNOY produces printer's parts. The company has to face mainly the liquid pollutants that come from the production. The liquid waste of the site (output) are constituted from-by copperplate and chromium (roller's washing). So, the environmental impacts are caused mainly by liquid wastes, which contain copper and chromium -chromium acid- as they are used to wash the cylinders. After the EMAS implementation there is more systematic monitoring of the use of these materials in order to limit the leakage during the procedure and to use more carefully the regulation guidelines. The most important step for the reduction of liquid wastes was the installation of new modernize biological cleaning. The result is the reduction of water wastes and the reuse of clean water partly in the production and for washing.

Before EMAS the untreated wastes were disposed in the draining tank, while some were absorbed by the soil. It is worth noticing that Inofyta

–an industrially developed area- hasn't a water supply or a sewerage system. Consequently, the companies have to buy water in tanks and then store it in private reservoirs. After implementing EMAS, ICR has showed a considerable legal compliance concerning waste management legislation and in general regulations applied for the whole company. The washing procedure is not anymore harmful for the environment, as there are specific devices for that purpose, not allowing leakage. Additionally, the liquids with high copper concentration are reduced. In this case there are no significant air wastes. But there are some solid wastes –like copper- which have been disposed after the EMAS implementation. The solid copper wastes are concentrated and subsequently being sold to a private company for further management. The most significant contribution of EMAS procedure for the reduction of solid wastes is the reusing of the steel roller. That means that the company 'collect' the solid from the steel roller and put them again in the production through a new technique. The result is the saving in the raw material and the reuse of it partly in the production.

Regarding the health and safety of the employees (that priority was given during the implementation of EMAS), responsibilities and competencies were redistributed amongst the employees and the control was systemized, based on material data shift. Although, in the beginning the employees were reluctant to EMAS, they gradually accepted the environmental management as a necessity. It is important that two daily seminars took place, in order to inform the employees. ICR Ioannou never faced an accident or complaint concerning its operation.

Concerning the suppliers and consumers, the company attempts to make a strategic opening towards the consumers, which decide based on environmental criteria, although the suppliers constitute the key target. In this framework, the collaboration with leading firms, which have adopted environmental criteria and policies, is continued. (e.g. the co-operation with Dupont and Kodak). However, the majority of buyers, which are not consumers but industries, have not shown increased interest in environmental issues (with the exemption of Hatzopoulou Industry). In 1999, the Environmental Impact Assessment was revised.

Finally, the local community hasn't shown any encouraging signs toward the environmental action of the company. Contrary, is significantly inactive with regard to the environmental problems of the area. However, the company aims to promote the implementation process and publish the results of its

environmental policy.

Nevertheless, ICR Ioannou was supported by EMAS, in order to systemize companies' competencies and responsibilities and in order to push employees to take active roles for their own safety.

3.3 Participation

In this case, the company decided to implement EMAS after the ISO9002 implementation. The role of the external consultant was serious, because he proposes to them the idea of EMAS implementation. The company was positive to this idea mainly because it planned to export its products to the European market. For the EMAS implementation the company hired new environmental manager that had some experience on this issue. Nevertheless, the company after the EMAS implementation continued to have cooperation with the external consultant.

Like the other cases, in this case, the employees have informed the implementation of the new system from above. Through the seminars and training courses they inform about EMAS. It is important to underline that the employees, at the beginning, were not too enthusiastic. They have been charged with new responsibilities, they have to participate in seminars and that means more work. But after the initial negative reaction of employees they accepted the system and they understand the EMAS necessity.

4 Reflections

The environmental management systems and especially the European EMAS can be an audit and management tool for environmental self-control. The enterprises by implementing EMAS can succeed in developing innovative systems, being sustainable, complying with the law and informing different target groups inside (employees) and outside (local authority, consumers) about environmental management. In fact, this system could be a useful device for organising different sector policies like water, energy policy etc and for watching continuously the company environmental state [7]. Last but not least the EMS implementation can increase company's profits (especially in long term planning) by better management and savings. ICR IOANNOY is a modern Greek company that interested in new management systems and standards. The company developed a systematic computer software package for monitoring its production line, EMAS for auditing its environmental impacts, ISO9002 for products

quality and some activities for health and safety. It is a SME company that attempts to integrate its different policies in order to succeed, in the future, a total quality management system.

Moreover, the implementation of EMS can provide variety of participation targets, like:

- *Reinforcement the environmental protection conscience not only in company's environment but also in home environment (i.e. "transfer environmental awareness for recycling from company to house-keeping by employees")*
- *Improvement of good neighbourhood relationships between company and local authority*
- *Being information core about environmental issues (by environmental statement or environmental conferences (scientific or not))*

As a matter of fact, the national governments and the EU can test them easily through their environmental statement (at first) and on the spot (at the second).

Even though it is a useful management tool there are of course some elements that need to improve especially about the education and the experience of the environmental verifier, who approve the environmental statement or the dynamic and compulsory participation of local authority or other stakeholders to the EMS procedure (like universities and laboratories).

So it would be useful for Greece and other countries, as the European environmental policy oblige them further to adopt an integrative approach. An enormous number of directives about different sectors (energy, water, air etc) be promoted in different periods, with different penalties, without any conjunction between them. Some of them can be in contrast with some other defying confusion and problems in a "difficult area" like environmental policies. This is the first priority in order to succeed these environmental targets and to activate public into dynamic participate.

However it is particularly important to mention that the liquid wastes of the company and the overall environmental performance have been greatly enhanced through the procedure. Looking at the case under a broader spectrum, we can conclude that such improvements, especially in industrial and heavily polluted areas of Greece should be further implemented and motivated and more incentives should be given to companies adopting environmental management systems, as they can offer swift solutions to water pollution problems apparent in such areas, enhancing at the same time the performance of the companies.

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