

Benefits of Environmental Management System in Polish Companies Compliant with ISO 14001

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Abstract

This article describes the benefits of implementing an environmental management system (EMS) conforming to the ISO 14001 standard in Polish companies. Experience shows that implementing an environmental management system in a company can bring a number of benefits, not only for the company itself but also to the whole surrounding environment. Prevention of pollution, which is the idea underlying the concept of an environmental management system, generates mechanisms aimed at minimizing material, resource and energy consumption. It is difficult to identify the benefits which directly arise from environmental management system implementation, as well as the benefits which indirectly spring from maintaining the system. The following article is an attempt to classify the benefits gained according to a number of factors. These factors are related to operational activities and management in an organization. Moreover, some notable benefits that improve the state of natural environment are described in this article. The following article can inform many organizations about the benefits of implementing environmental management system compliant with ISO 14001 standard and convince them to implement such a system. Moreover, thanks to this article some groups of benefits resulting from implementing, maintaining and continually improving an environmental management system will be pinpointed. The survey presented in this article was conducted out in 700 companies that have certified their environmental management systems at ISO 14001 standard.

Keywords: environmental management system (EMS), ISO 14001, benefits of environmental management systems (EMS)

Introduction

As far as literature in this subject matter is concerned, no comprehensive review directly related to the identification of benefits arising from implementing an environmental management system according to ISO 14001 standard has been compiled. Descriptions of individual cases are very often limited to indicating some of the benefits of certifying an environmental management system against ISO 14001 standard requirements or to presenting the most frequent obstacles to overcome. However, the problem of determin-

ing the possible benefits of maintaining and continually improving an environmental management system (EMS) based on research carried out on such a big group of respondents has been described neither in Polish nor in foreign literature so far. Knowledge about the benefits arising from environmental management system implementation is based on the review of literature, ISO 14000 series requirements and surveys conducted among a group of experts in the field of environmental management.

Environmental management systems based on the requirements of the international ISO 14001 standard are becoming more and more popular in Poland as well as around the world. The last edition of the yearly survey on

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the number of ISO certificates in the world notes a significant growth in the number of issued ISO certificates confirming compliance of the environmental management system in use with ISO 14001 requirements. The survey shows that at the end of 2006 125,000 certificates were issued in the world, which in turn amounted to 16% growth in comparison to 2005. Growth in the number of countries in which ISO 14001 certificates were issued was observed, too – the 2006 survey indicated that environmental management systems compliant with ISO 14001 were implemented and successfully certified in 140 countries. The number of countries in which environmental management systems certified against ISO 14001 standard rose by 11 compared to 2005 [1].

As stated above, Poland is not among the leading European countries in this respect. However, the growth in number of certificates is more and more significant year by year, which reflects the growing interest in environmental management system and above all in the benefits an organization can obtain as a result of environmental management system implementation and maintenance. The number of certificates of environmental management systems compliant with ISO 14001 standard is presented in Fig. 1.

The above figure reflects the growing interest in implementing and certifying environmental management systems against ISO 14001 standard. The interest varies in different voivodeships of Poland and depends on many economic and non-economic factors characteristic of particular organizations running business in a given region. (For more detailed data on the number of ISO 14001 certificates in particular voivodeships of Poland, as well as on the number of certificates issued by particular certification bodies, visit the Association Polish Forum ISO 14001¹ website. Many companies expects a lot of benefits resulting from implementing an environmental management system compliant with ISO 14001).

The Reasons for and Benefits of a Systematic Approach to Environmental Management

A number of reasons for implementing the environmental management system compliant with ISO 14001 exist. Among others the following reasons can be listed [2]:

- care for the environment,
- accepted development strategy of the company,
- development guidelines for the quality management system in use,
- influence of any third parties on the activity of the company,
- possible growth in exports of company products,
- compliance with legal requirements,
- raising pro-ecological awareness of the employees,
- interest of the local community in the activity of the company,
- improving environmental impact,
- planning to increase market share.

Care for the environment is considered one of the most important premises underlying implementation of environmental management systems compliant with ISO 14001. However, literature [3, 4] in this field often presents a view according to which the main and quite often the only reason for taking environmental protective action is the legal system in force. Edwards write that there are four reasons why every organization should take environmental factors into account in its management processes [5]:

- ethical – as human beings we have a duty to look after the world in which we live and to hand it on to our children,
- economic – conserving resources and not generating waste products or wasting energy means we save on cost,
- legal – more and more governments including our own are passing laws to control how we interact with the environment,
- commercial – more and more large organizations are taking control of their environmental responsibilities and they expect their suppliers and subcontractors to do the same.

Experience shows that implementing an environmental management system in a company brings a number of benefits not only to the company itself, but also to the whole surrounding environment. Prevention of pollution, which is the idea underlying the concept of an environmental management system generates mechanisms aimed at minimizing material, resource and energy consumption. It can bring about cost reduction as a result of [2]:

- streamlining the efficiency of running processes (decreasing resource and energy consumption and the volume of waste, as well as proper maintenance of machine and devices) and implementing new, more effective processes,
- designing products and services so as to limit natural resource consumption and at the same time maintain quality,
- providing proper waste management (recycling and other forms of economic waste utilization),
- optimizing selection of resources, materials and products,

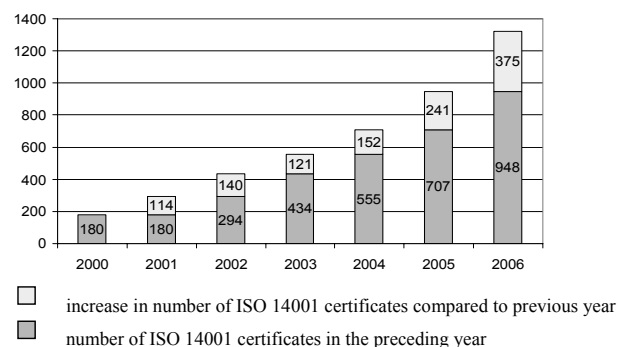


Fig. 1. Number of ISO 14001 standard certificates in Poland in 2000-06.

Source: own elaboration based on www.eko-net.pl and www.pfiso14000.org.pl

¹ <http://www.pfiso14000.org.pl/>

- improving efficiency of the infrastructure used (facilities and utilities),
- providing proper storing, packaging and transport processes.

Susan LK Briggs listed the following multiple benefits of environmental management systems [6]:

- enhanced environmental awareness/accountability at all levels of the organization,
- improved regulatory compliance,
- enhanced operational controls and procedures,
- reduced environmental footprint in terms of environmental emissions, discharges and waste,
- improved internal communications and external partnerships,
- continual system improvements resulting from environmental management system objectives, targets, programs, periodic audits and management reviews.

Turner and O'Neill [7] identified a lot of potential benefits of ISO 14001 certification, including the ability to increase price due to differentiation, to use certification as a barrier, to entry for potential competitors, to enhance corporate image, to gain protection against claims of environmental negligence, to pre-empt government regulation, to have opportunities, to make an input on standards and to promote better management controls. Curkovic, Sroufe and Melnyk [8] listed factors such as improved environmental performance and management methods, and the gaining of competitive advantages, as some of the likely benefits.

Other authors have listed more benefits of environmental management systems. For example, in small and medium-size enterprises benefits are categorized into five main areas [9]:

- enhanced efficiency and lower costs,
- reductions in resource use, waste and emission,
- regulatory compliance,
- employee involvement,
- improved relations with customers.

Meeting legal requirements as far as environmental protection is concerned is becoming more and more important. Legal compliance helps the organization avoid any potential financial fines and negative image linked to nonconformity of the organization with environmental law. Knowledge of legal regulations and developing a proper corporate culture and pro-ecological awareness among management and employees helps the organization to predict and very often influence future legal regulations on environmental protection [10]. This, in turn, gives the organization an opportunity to harmonize its development plans with the said regulations and adjust development plans to such regulations. Another benefit it brings is gaining possible advantage over competitors, which adjust their operations to new regulations first when such regulations come into force [11].

When implementing an environmental management system compliant with ISO 14001 the company has to identify all potential environmental risks which are connected to its activities, as well as to prepare itself properly in case such risks should occur. A functioning environmental management system minimizes the probability of occurrence of

events which could influence the natural environment in a negative way. Environmental management systems functioning in organizations contribute to the fact that banks, and insurance companies together with potential investors are more willing to cooperate with organizations that have implemented environmental management systems as they are not concerned about the occurrence of potential environmental risks. Nowadays companies launching any new investments are obliged to assess the influence of such an investment on the natural environment [12]. The assessment of environmental influence for any new investment helps to identify environmental risks, which in turn affect the decision to enter into cooperation or become engaged in the investment process. Although cases in which business activity is discontinued as a consequence of its negative influence on the environment are rare, blocking investments due to lack of acceptance of environmental aspects is more and more frequent. It has to be noted here that the criterion of 'environmental credibility' is taken into account in different kinds of projects financed by such institutions as the World Bank or the European Bank for Reconstruction and Development.

Other authors [13] have identified two broad categories of benefits that could be achieved from an effective environmental management system such as ISO 14001: economically quantifiable benefits and economically non-quantifiable benefits. Economically quantifiable benefits include the following:

- raw materials saving,
- energy saving,
- improvement in production system availability,
- reduction of rejects,
- reduction of waste treatment costs,
- exploitation of rejects,
- reduction of idle times,
- public incentives,
- health care,
- insurance cost reductions,
- increased in capacity,
- decreased some logistics costs,
- increase in resource usage efficiency.

Economically non-quantifiable benefits, including the following:

- company image,
- liability and risk reduction,
- market opportunities,
- reduction of contamination risk,
- better knowledge of job and production system,
- product image toward customers,
- relationship with authorities,
- reduction of human risk,
- flexibility of management system,
- pro-active attitude to the environmental question,
- compatibility with ISO 9001 and ISO 14001.

Considering the economic and non-economic benefits of an environmental management system, it is not difficult to understand the potential value to politicians of propagating the benefits of its implementation for the good of both the local community and industry [7].

As a result of the research conducted at the Department of Standardized Management Systems between 1997 and 2004 in Polish companies which had a certified environmental management system according to ISO 14001, two groups of benefits were differentiated, i.e. internal ones and external ones [14]. Internal benefits include the following:

- reduction in costs as a result of: rational material and resource management; saving on energy and on other utilities, materials; diminishing the volume of waste, cutting down on or eliminating pollution,
- increased profitability,
- compliance with legal regulations and other regulations on environmental protection,
- eliminating fines and penalties for non-compliance with legal regulations on environmental protection,
- possible reduced environmental fees,
- bank loans on preferential terms,
- taking advantage of structural funds financing,
- raising the pro-ecological awareness of the employees as well as their self-control and responsibility,
- possible reduced insurance fees,
- increased security in workplaces,
- improved detection and elimination of any inconsistencies,
- more efficient management structure in the field of environmental protection.

Despite the fact that compliance with legal regulations on environmental protection stems from the obligation of each organization to adhere to Polish law, the respondents considered compliance with legal regulations to be one of the most important internal benefits. Rise in pro-ecological awareness as well as in responsibility and self-control in their workplace is the second most important benefit defined by the surveyed organizations. By raising employee awareness on environmental problems, and local problems in particular, it is considerably easy to involve the employees in any environmental protection campaigns or actions. However, the conduct of the management must be consistent and prove that care for the environment is part of a company strategy and not a momentary change in company practice. Cost reduction as a result of rational material and resource management; conserving energy and diminishing the volume of waste are some other benefits recognized by the companies.

External benefits are the second group of benefits including:

- raising attractiveness in the eyes of investors (shareholders) as well as improving the image of the company which can give rise to more successful business negotiations,
- raising competitiveness on the internal and external market (by deepening the trust of customers and contractors),
- improving the condition of the natural environment,
- increasing market share by meeting the market requirement of 'caring for the environment',
- improving relations with the local community,
- possibility of maintaining old customers and gaining new ones,

- improving environmental credibility of the company in the eyes of local administration representatives and in the eyes of customers.

The aforementioned internal as well as external benefits have their financial dimension and bear financial results. Proper evaluation of possible benefits and their costs can help the board of organizations make accurate decisions. Implementing an environmental management system according to ISO 14001 generates high financial outlays. However, in the majority of investigated cases financial outlays on environmental protection were planned before a decision was made to implement an environmental management system. Based on the research carried out, it can be stated that the benefits of implementing an environmental management system, both internal – directly influencing the activity of the company, and external – influencing its surrounding environment outweigh the costs of its implementation.

It also has to be noted that quite often the major condition for maintaining or entering into cooperation with a subcontractor is implementing and maintaining an environmental management system by the subcontractor. Small companies are quite often suppliers of large enterprises. In case they do not have an environmental management system it is hard for them to compete on the market and retain their position as suppliers of large multinational organizations. It stems from the worldwide trend to introduce the principles of 'sustainable development'. Research carried out in Israel confirms that companies which implemented and certified environmental management systems have in most cases higher odds of selling their products and services than companies which do not have such a system. Only 7% of the surveyed companies stated that holding a certificate by the supplier did not bear any significance in the qualification process. Moreover, holding an ISO 14001 certificate diminishes the risk linked to buying products and services of a given company in the eyes of a potential buyer. As a result, buyers are often willing to pay more for the goods of this supplier than they would pay for goods of a supplier who does not hold the certificate. Despite the fact that the quality of the product or service is still the main criterion in supplier selection, holding an ISO 14001 certificate can create a substantial competitive advantage [15]. What is more, environmental management systems implemented according to ISO 14001 can contribute to creating a competitive advantage for the whole economy of a country over economies of other countries. The German economy is a good example here. Nowadays it is considered to be very environmentally friendly [16]. Possible reduction in prime costs, improving relations with supervisory bodies, customers and local communities can create conditions to consolidate or improve market position of an organization. A certificate of compliance of environmental management system with ISO 14001 standard requirements is becoming one of the main assets when tendering for public orders.

Implementing the principles of environmental management can also result in less frequent environmental controls carried out by public administration bodies and in tempering other forms of supervision. Publishing information on the results of any efforts to minimize the negative influence on the

environment helps to create a positive image of the company in society and thus it can positively affect its market position.

Ecological benefits very often go hand in hand with economic effects mainly due to developing legal regulations on environmental protection in Poland. It is becoming less and less cost-effective for production plants and other organizations to pay fines and penalties as well as to cover very high environmental fees and to leave the problems of pollution unsolved. The 'shield' of a special industrial plant which pays less contribution to the National Fund for Environmental Protection and Water Management than other organizations with the same volume of waste is also gone [3]. It also has to be noted that public opinion has its say more and more often. Thus, we can speak of sociological effects. Especially in the case of industrial plants located in small towns implementing an environmental management system has an effect on the conscience of the inhabitants, as above all they constitute the crew of the plant and their conscience shaped in the company can then be transferred to their family life. Undoubtedly it is a time-consuming process, but it can be successful, aided on a large scale by the media and other incentives.

ISO 14004 contains some of the possible benefits that arise from maintaining an environmental management system. The potential benefits associated with an effective environmental management system include [17]:

- assuring customers of commitment to demonstrable environmental management,
- maintaining good public/community relations,
- satisfying investor criteria and improving access to capital,
- obtaining insurance at reasonable cost,
- enhancing image and market share,
- improving cost control,
- reducing incidents that result in liability,
- conserving input materials and energy,
- facilitating the attainment of permits and authorizations and meeting their requirements,
- promoting environmental awareness among suppliers, contractors and all personnel working for or on behalf of the organization,
- fostering development and sharing solutions to environmental problems,
- improving industry-government relations.

In order to identify benefits as well as to obtain credible answers related to the benefits resulting from implementing and maintaining an environmental management system compliant with ISO 14001 requires a questionnaire to be drawn up and sent to the organizations which have certified their environmental management systems against ISO 14001 requirements.

Methodology of Empirical Research

The empirical research was carried out by the author at the Department of Standardized Management Systems of Poznań University of Economics between 2005 and 2007. The author wanted to find answers to the following questions:

- What benefits have the organizations gained as a result of implementing environmental management systems and certifying them against ISO 14001?
- Do the organizations use the requirements of ISO 14031 norm to assess the impacts of their environmental activity?

In order to find answers to the above questions the author focused on the content and scope of empirical research methodology. The main goal of her survey was to identify and assess all the factors influencing the development of environmental management systems, as well as to identify all the benefits of an environmental management system operating in Polish companies which have certified their environmental management system against ISO 14001.

Sample of Surveyed Companies Description

The questionnaire was compiled based on knowledge to date and was sent at random to 700 out of 1,500 companies which as of June 2007 were certified against ISO 14001. Based on 202 correctly filled in questionnaires which were sent back, survey results were drawn up. In the research, organizations also determined how they benefited from maintaining and developing their environmental management system.

The biggest share (67.5%) of organizations which have a certified environmental management system are production companies. It confirms only the fact that the interest in such management systems in case of this type of companies is especially high, probably due to the negative impact of their activity on the natural environment. It also has to be stated here that service companies constitute 42.32% and that representatives of trade organizations amount to 17.13%. Organizations which represent local administrations constitute only a very small percentage, namely 6.5%. However, interest in implementing, maintaining and continually improving an environmental management system is also present in such organizations.

When we analyze employment structure of the surveyed organizations it has to be noted that 50% of them are large organizations employing more than 250 employees. Medium-sized organizations are the second biggest group. Small-sized organizations are the smallest group in this ranking and constitute only 17%.

When we take into consideration the origin of capital, it must be noted that the biggest percentage of respondents were organizations with dominant Polish capital; more than 50% of them. They are representatives of a group of large corporations. More than 30% of the companies have a dominant share of foreign capital. And about 20% of the companies belong to public administration.

The universal character of ISO 14001 finds its reflection in the structure of the sample of the surveyed companies. The companies in question represent different fields of activity. The biggest share is represented by companies belonging to group D, which deals with processing.

In the second place there are organizations which produce and supply electrical energy, gas and water as well as organizations which provide public utilities. The next group of companies include construction companies and organizations dealing in cars and providing car repair services. In addition, several operate in the fields of:

- mining,
- transport, storing and communication,
- estate market,
- public administration,
- health care and social service.

The big interest in implementing environmental management system is linked with the accepted development strategy of companies producing machines and electrical devices, as well as metal products and chemicals. The negative impact of their activities on the environment is substantial. These companies manifested their care for the environment by implementing environmental management systems. Moreover, such companies are in good financial condition, which very often has its source in the transfer of the latest technology as well as of financial resources from foreign companies taking over such Polish companies.

Environmental Performance Impacts

A perfect tool to evaluate environmental impacts is ISO 14031 which describes two main categories of indicators used when evaluating environmental impacts (and aspects). The following indicators are distinguished [18]:

- environmental performance indicators – specific term which provides information about the environmental impacts of the activities of an organization:
 - management performance indicators,
 - operational performance indicators,
- environmental condition indicators.

Unfortunately, organizations have not indicated the norm as a benchmark to evaluate the environmental impacts of their activities. What is more, using the norm as

a tool to improve an environmental management system has been considered a factor of little significance by the respondents.

As has been mentioned before, the main aim of the survey was to identify the benefits of implementing and maintaining an environmental management system that conforms to ISO 14001. Based on the survey, four groups of benefits (impacts) resulting from an environmental management system compliant with ISO 14001 in Polish organizations were proposed:

- management of environmental impacts,
- operational environmental impacts,
- economic impacts,
- external benefits.

According to surveyed companies, the most important impacts linked to management performance arising from implementing and maintaining environmental management systems were enhancing management in the field of environmental protection (97%) and raising the employees' awareness on environmental requirements (95%). But the issue of transfer of responsibility and powers to lower levels of management in cases of only 66% of respondents brought about environmental impacts, and in 20% of the organizations no management of environmental impacts were observed. Management of environmental impacts which were achieved by the surveyed organizations are presented in Fig. 2.

Another group of benefits arising from having a certified environmental management system conforming to ISO 14001 are operational environmental impacts. In this group we can find all kinds of benefits which can be achieved as a consequence of effective operations management, i.e. management of significant environmental aspects. Very often the benefits stem directly from the realization of environmental objectives and targets accepted by the organization. In this group the surveyed organization considered reducing the volume of produced waste (79%), reducing or eliminating air pollution (69%) and reducing resource consumption (66%) – the most important environmental

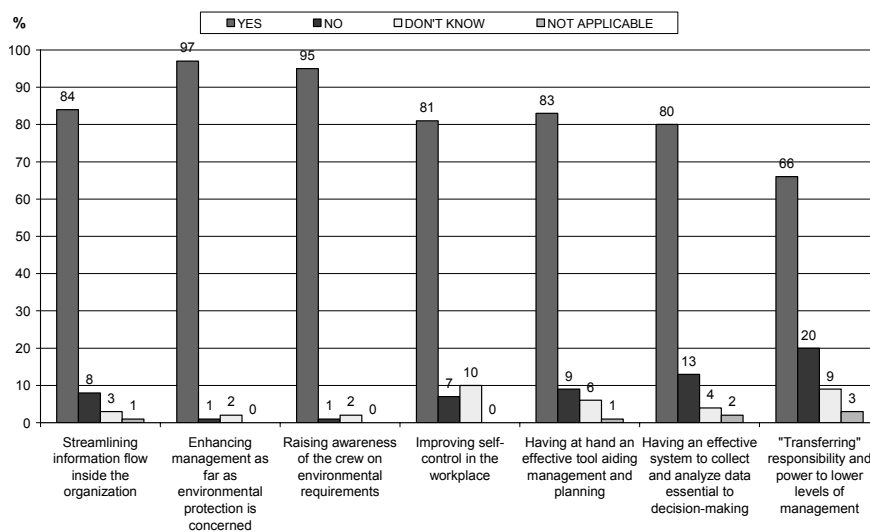


Fig. 2. Management of environmental impacts in the surveyed organizations. Source: Own elaboration.

impacts. In each group of the benefits mentioned at least in several percent of the surveyed organizations such benefits could be observed.

It has to be noted here that there were organizations (ranging from 9% to 23% of all) that have not achieved any benefits in this area as a consequence of functioning of environmental management system compliant with ISO 14001. It stems from the fact that as part of the environmental management system organizations have to focus on target realization in the field of significant environmental aspects. Not all the groups of environmental aspects mentioned were significant to the surveyed organizations. Unfortunately, the fact that the surveyed organizations could not determine whether or not they achieved some operational environmental impacts proved that there was no supervision over environmental management systems and

that the monitoring and measuring systems were ineffective. The operational environmental impacts achieved by the surveyed organizations are presented in Fig. 3.

Another group of benefits arising from having a certified environmental management system conforming to ISO 14001 are benefits that affect the financial situation of the organization, i.e. economic impacts. In this field the surveyed organizations achieved benefits connected with enhanced market position (67%), a rise in competitiveness (63%), and cost reduction due to smaller resource consumption (62%). However, it is very difficult to determine unambiguously whether the functioning of an environmental management system contributed directly to achieving the mentioned benefits. Such benefits are very often influenced by external factors, both in macro and micro scales. The biggest share of companies taking part in the survey

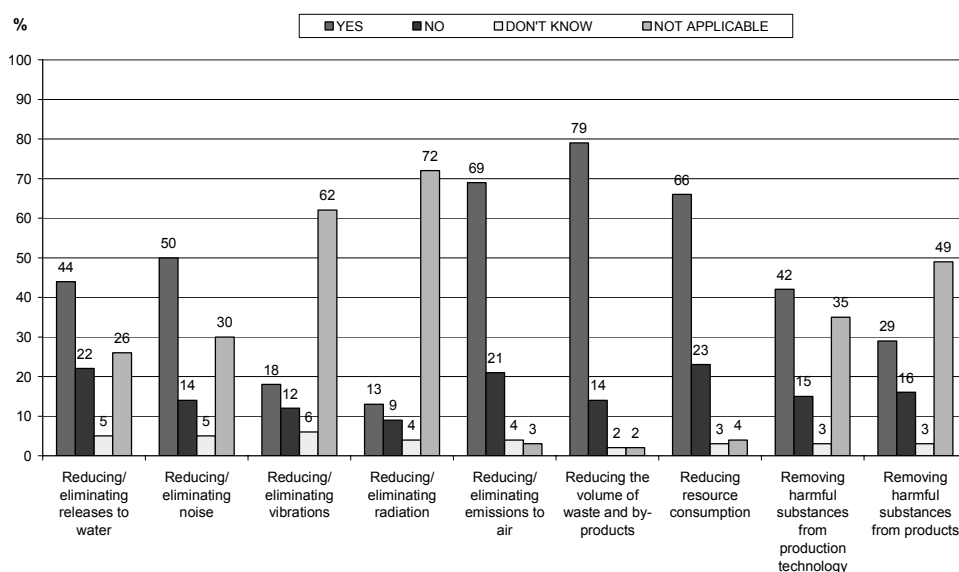


Fig. 3. Operational environmental benefits. Source: Own elaboration.

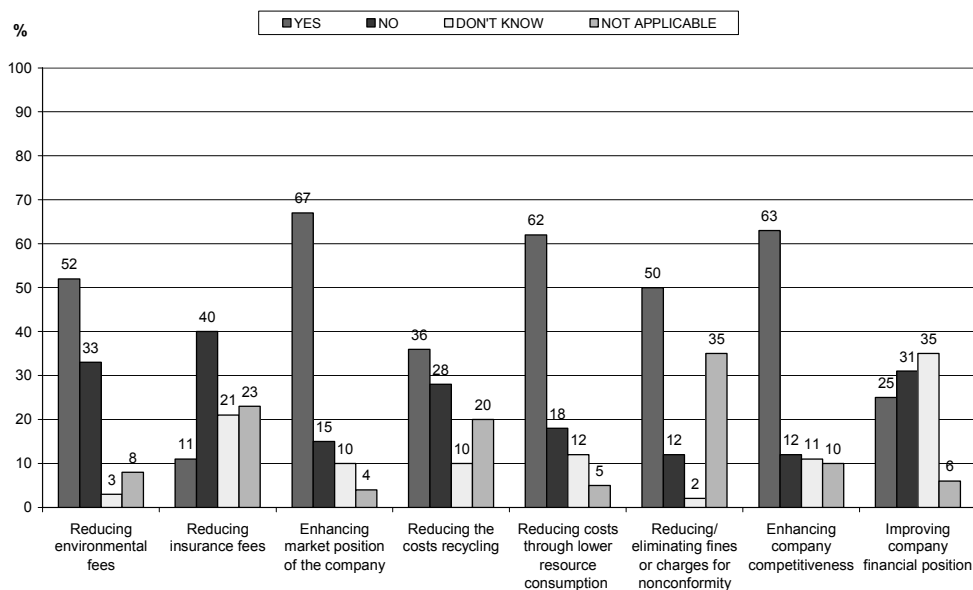


Fig. 4. Operational environmental benefits. Source: Own elaboration.

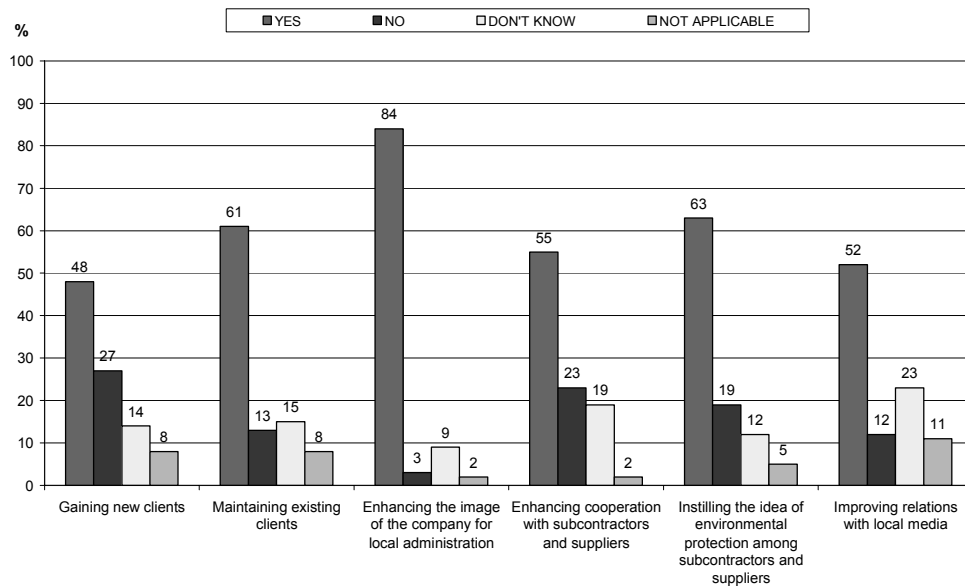


Fig. 5. External benefits achieved by the surveyed organizations.
Source: Own elaboration.

(i.e. 40%) declared that they were not able to negotiate lower insurance premiums even though they had certified their environmental management system against ISO 14001. Only 11% of the organizations participating in the survey were able to negotiate lower insurance premiums. As far as benefits linked to improved financial condition are concerned, not less than 31% of surveyed organizations declared that they have not achieved such benefits, but at the same time 25% thought that an environmental management system can improve the financial situation of the organization. It has to be noted here, that no organization should consider an environmental management system as a tool which directly improves its financial position. But as a result of achieving management and operational environmental impacts the organization, undoubtedly, can achieve benefits linked to improved financial position. The benefits connected to economic impacts of the company are presented in Fig. 4.

The last, fourth group of benefits are the external benefits. It is a group of benefits which can directly improve the condition of the natural environment as well as influence the satisfaction of “the interested parties,” which according to ISO 14001 include the society, local authorities, the government, customers, subcontractors and other organizations interested in the environmental activity of the companies in question. In this case, 84% of the surveyed organizations recognized that their image in the eyes of local authorities was enhanced. A little less i.e. 63% of the respondents noted that they instilled the idea of environmental protection in their subcontractors and suppliers. 61% of surveyed organization stated that, thanks to maintaining and continually improving an environmental management system, they were able to retain old clients and in the case of 48% of the organizations they were able to gain new clients. The external benefits resulting from improving an environmental management system are presented in Fig. 5.

Conclusions

Very often organizations, when taking decisions to implement an environmental management system conforming to ISO 14001, speculate about when and what benefits they can achieve. It stems from the fact that implementing and maintaining an environmental management system is an expensive process, and this management system brings positive effects in the long term.

Nevertheless, the results of the survey indicate that the organizations achieve benefits in all areas. The surveyed companies were also asked about the effectiveness and efficiency of environmental management systems. 85% of respondents considered environmental management systems to be effective. Therefore, the objectives set by the surveyed organizations were achieved. The objective is very often to achieve these four groups of (impacts) benefits. A slightly smaller number of respondents, i.e. 76% considered environmental management systems to be efficient. This directly influences the financial results of the organization. It has to be stated, however, that these were mainly organizations that have had environmental management systems for several years. In many cases these organizations have successfully completed the re-certification audit.

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