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**IMPLEMENTATION OF ENVIRONMENTAL
MANAGEMENT SYSTEMS
IN THE CZECH REPUBLIC**

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The paper deals with the present situation of the implementation of environmental management systems in the Czech Republic. It focuses on the main reasons of EMS implementation in companies, on the costs connected with implementation as well as on the actual economic effects of environmental management systems. The objective of this paper is to point out the present standard of environmental costs tracking in those of Czech companies who have implemented environmental management systems and to stress the importance of such information for company management. The paper includes some of the results acquired from the grant-subsidized project of the Grant Agency of the Czech Republic "Environmental Costs Information for Environmental Management" (No. 402/02/0092).

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Introduction

The companies' approach to the environment is an important aspect of their success in business. Within the framework of the environmental protection companies must comply with the legal requirements. Often it is very expensive to achieve a compliance with these regulations. The environmental performance of a company and the costs related to protection and damaging of the environment could affect the economic results of the company and its financial position significantly. In the recent years, the Czech Republic has seen increased attempts of companies to reduce the negative impact of their activities on the environment by application of environmentally friendly technologies. Preventive approaches are preferred (wastes prevention) to end-of-pipe technologies (wastes disposal). The point of the environmental protection has become an integral part of decision-making. A wide range of voluntary initiatives and activities has been using the area of environmental protection, the environmental management systems (EMS) implementation, in particular.

Environmental management means a systematic approach to the environmental protection in all aspects of business. Companies are incorporating the care of the environment into their business strategies as well as into their daily operations. The approach lies in forming, implementing and maintaining a duly structured system of environmental management, which is a part of the overall management system that includes all elements of environmental behaviour of the company. The outcome of EMS implementation is a contribution to the permanent economic growth and prosperity of the company. Simultaneously, a gradual reduction of negative impacts of company's activity on the environment is achieved. The number of companies with implemented EMS has been growing.

The University of Pardubice and Brno University of Technology have realized a research of environmental management of Czech companies in 2002. The points of interest involves:

- the present situation of the implementation of environmental management systems, which focused on the main reasons for EMS implementation in companies, on the costs connected with implementation and on the actual economic effects of environmental management systems,
- the present situation in the area of environmental cost tracking, which focused on the structure of environmental costs and the present level of their tracking in Czech companies and on the importance of information about environmental costs for decision making.

The research was carried out as a part of a project of the Grant Agency of the Czech Republic: "Environmental Costs Information for Environmental Management" (No 402/02/0092). This project was realized using a questionnaire method and interviews with managers of selected companies. We questioned 208

companies with implemented environmental management system, which were registered in REM-CZ list, administrated by CEMC Prague (The Czech Environment Management Centre in Prague). Out of them, 89 companies, i. e. 43 %, sent the completed questionnaires back. The examined group includes companies of various size and from various branches of industry. The results of this research were processed using common mathematic — statistical methods. The basic knowledge from the research is summarized as follows.

Results of Research on Implementation of Environmental Management Systems

The Main Reasons for EMS Implementation

Companies stated as the main reason for EMS implementation, the permanent interest in the environmental protection (82 % of respondents) and efforts to improve the position on the market (74 % of respondents). It is clear from this research, that companies were aware of a growing pressure on a responsible approach to the environment, particularly in terms of transition from the passive approach (end-of-pipe technologies) to the active one (cleaner production) from the interested parties (mainly state agencies, public and business partners). A majority of companies have implemented the environmental protection aspects into their business strategy.

Costs Connected with EMS Implementation

Implementation costs were mostly more than 200 000 CZK in the examined group of companies. They were lower than 500 000 CZK in case of 47 % of respondents. 29 % of respondents stated that the implementation costs exceeded 1 million CZK. Companies considered as the most important elements of cost EMS certification costs and payments to external organizations for consulting services.

The research confirmed the dependence of costs on the company size (see Fig. 1).

Companies with less than 50 employees did not spend more than 500 000 CZK on implementation of environmental management system (25 % of companies did not exceed the amount of 200 000 CZK).

Sixty-three percent of companies with the staff between 51 and 250 employees did not spend more than 500 000 CZK on EMS implementation. 11 % of respondents of this size category gave the implementation costs from 500 000 CZK to 1 million CZK. 19 % of companies spent more than 1 million CZK on EMS implementation.



Fig. 1 EMS implementation costs (regarding the size of the company)

Fifty-two percent of companies in the third group with more than 250 employees claimed to spend more than 500 000 CZK, while 37 % spent more than 1 million CZK.

Effects of Environmental Management Systems

Ninety percent of companies expected to reach a compliance with environmental laws and improvement of management system after EMS implementation. The research confirmed that these expectations were fulfilled. There was a clear evidence of the connection between EMS implementation and “improvement of the tidiness” in the company. As a part of EMS implementation, activities that affect negatively the environment were identified. Important environmental aspects and impacts of business activities, products and services on the environment were revealed. The main emphasis was concentrated on the compliance with valid laws and standards in the area of the environmental protection. Environmental policy and environmental objectives were defined. A continual improvement of environmental performance of a company was achieved in accordance with the environmental policy of the company. Consequently, companies are ready to conform to stricter environmental laws in the future and they can adopt them easier.

A respect of sustainable development principles, improvement of supplier-consumer relations and better initial position for negotiation with banks, insurance companies and government authorities were also expected by more than 70 % of companies. However, these expectations were not fulfilled in the same measure as

the above ones.

Companies saw the important difference in expected effects and their fulfilment primarily in the increase of market share. Sixty-two percent of companies expected that EMS implementation would be advantageous from the perspective of increase of their market share. But only 40 % of companies confirmed their expectations were fulfilled.

Companies also saw the effect of environmental management in the area of reduction of material and energy consumption and operating costs, savings on fines related to the environmental impairment, reduction of charges for the environmental protection, preservation of cooperation with business partners and increase of employee satisfaction and performance.

Eighty-five percent of respondents stated that managing of impacts of company activities, products and services on the environment had positive influence on the company revenues. Companies assumed that better reputation of a company due to a responsible approach to the environment was positive for revenues development (79 %). The revenues growth due to improved products reputation was supposed by 61 % of companies. Half of the companies (51 %) agreed that the environmental management contributed to revenues growth because of improved products quality.

Results of Research on Environmental Costs Tracking

Environmental Costs Structure

For the purpose of environmental management and in the search for an environmentally friendly solution, which would comply with the economic objectives of the company as well as with sustainability principles, it is necessary to stress the importance of *the identification of costs expended for environmental protection and costs related to environmental impairment (i.e. environmental costs)*. Usually companies regard the following elements as the environmental costs:

- costs of waste disposal,
- costs of waste transportation,
- charges for the environmental protection,
- fines and penalties related to the environmental impairment,
- payments to external organizations for services related to the EMS implementation, certification and re-certification,
- operating costs of end-of-pipe technologies, i.e. waste water treatment plants, incinerators, etc.

The list makes it obvious what type of costs is traced - namely costs related

to the treatment of wastes, of wastewaters and to emissions into the air, charges for environmental protection, sanctions for the environmental impairment and costs for external services related to environmental management systems. The research results indicated that a part of costs related to the environmental protection and its impairment remained concealed in aggregate elements of costs. The research also revealed that decision making processes dealt mainly with costs of waste disposal, while wasted material purchase value and even production costs of the non-product output were not considered at all. However, foreign studies have shown [2] that costs of waste elimination generally reach from 1 to 10 % of the total environmental costs, while the wasted material purchase value represents up to 40 – 90% of environmental costs, depending on the branch of industry examined.

Environmental Costs Tracking

The research was focused not only on the fact whether environmental costs were tracked by companies but also on the way how they were traced and tracked (in the framework of an accounting system or outside of it). The results of the research in the area of environmental costs tracking are shown in Fig. 2.

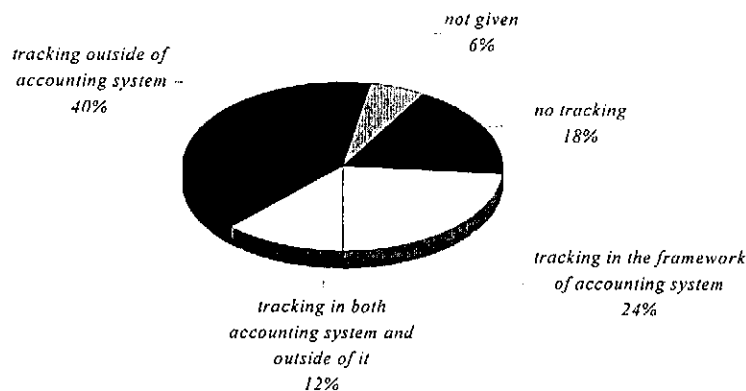


Fig. 2 Tracking of environmental costs

Environmental costs were tracked by 76 % of the examined companies. Environmental costs were tracked outside of the accounting system more frequently. The result of the research reflected unambiguously that the larger the companies were, the higher number of companies tracked environmental costs. This was closely related to the fact that the size of companies required correspondingly complex accounting systems (the number of accounting transactions grows, the transparency deteriorates). In order to support decision-making processes in large companies, it is useful to track and evaluate important

elements of costs. Undoubtedly, environmental costs belong to important elements of costs in many companies and, therefore, they are tracked whether in the framework of the accounting system or outside of it.

If we analyse the manner of environmental costs tracking depending on the size of companies (see Tables I and II), we can find that a growing tendency is evident, in connection with tracking of environmental costs outside of the accounting system. Sixty seven percent of companies with more than 250 employees tracked environmental costs outside of the accounting system.

Table I Environmental costs tracking in the framework of accounting system (regarding the size of the company)

	11 – 50		51 – 250		more than 250	
	abs. f.	rel. f.	abs. f.	rel. f.	abs. f.	rel. f.
Yes	1	14 %	11	41 %	20	37 %
No	6	86 %	14	52 %	25	46 %
Not given	0	0 %	2	7 %	9	17 %
Total	7		27		54	

Table II Environmental costs tracking outside of accounting system (regarding the size of the company)

	11 – 50		51 – 250		more than 250	
	abs. f.	rel. f.	abs. f.	rel. f.	abs. f.	rel. f.
Yes	1	14 %	10	37 %	36	67 %
No	6	86 %	11	41 %	6	11 %
Not given	0	0 %	6	22 %	12	22 %
Total	7		27		54	

In the framework of the research the attention also focused on a fact whether the tracking of environmental costs was influenced by the ownership structure of the company. The results showed that environmental costs were tracked in companies that were in the ownership of both foreign and local entities, including the companies in the state ownership.

Environmental Costs Tracking on Product, Division (Cost Centre) and Process Level

The majority of companies (31 %) stated that environmental costs were tracked on the division level. Environmental costs on the product level were tracked by 17 % of companies. Environmental costs on the process level were traced and tracked

by 15 % of companies. The number of companies tracking the environmental costs on the product and process level declined with the growing size of the companies. On the other hand, the number of companies tracking the environmental costs on the division level was increasing with the growing size of the companies.

The data obtained also confirmed that the management accounting systems were focused on division (responsibility oriented) management and on product management. With the growing size of the company, attention should be paid particularly to the division (responsibility) management. On the other hand, the growing size of the companies is accompanied with the growing complexity of accounting systems, where environmental costs are tracked outside of the accounting system in a majority of companies.

The Importance of Information about Environmental Costs for the Management

Over 85 % of respondents declared that information about environmental costs was useful for decision-making. The research showed that the importance of information was increased with the size of companies. Ninety-one percent of companies with more than 250 employees regarded information about environmental costs as useful for the company management. Therefore, it is obvious that environmental costs in large companies should be considered as an important element of costs, which need to be tracked and controlled.

Conclusion

Systems of environmental management are used in many companies in the Czech Republic. The main reasons of EMS implementation are the continuous interest of companies in environmental protection and an effort to maintain or to improve their position on the market. The results of research confirmed that implementation of the environmental management systems could represent an improvement of the competitive ability for a company. The following factors could be considered the main ones for the growing competitive advantage

- the improvement of management of an entire company,
- cost reduction (savings of raw materials, energy; reduction of fees for the environmental protection; improvement in waste disposal etc.),
- the improvement of supplier-consumer relations and
- better relationships with banks, insurance companies, state agencies and the public.

Tracking and evaluation of costs expended for environmental protection and costs related to environmental impairment are of a significant importance for

decision-making processes in the framework of an environmentally oriented management. Costs of waste disposal, charges for the environmental protection, sanctions for the environmental impairment and expenses connected with the environmental management systems are considered as the environmental costs in companies. The research also revealed that decision-making processes dealt mainly with costs of waste disposal while wasted material purchase value and even production costs of the non-product output were not considered at all.

The research carried out in Czech companies showed that four fifths of the respondents considered information about environmental costs to be important for company management and over three quarters of companies carried out an autonomous tracking of environmental costs. Environmental costs were tracked outside of accounting system more often under current conditions. The research showed that tracking of environmental costs on the level of divisions, products and processes was also important for the decision-making processes in companies.

The results of the research confirmed that companies which declared managing of the impact of their activities on the environment and tried to apply a responsible attitude to the environment by using voluntary tools for environmental protection, were aware of the influence of a company environmental performance on its financial position and on the economic results. Therefore, they paid attention to the tracking of costs related to the protection of the environment and its impairment. The acquired data were used to support the decision-making processes in the company.

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