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Sustainable Development And Environmental Management Systems In The Czech Republic

Abstract: *The aim of the paper is to map the understanding of the sustainable development concept in Czech enterprise and to discuss the EMS significance for its promotion in business practice. The paper summarizes the research carried out in 2005 by the Czech Environmental Management Centre and by the Czech Environmental Information Agency. The paper aims at the understanding of sustainable development concept in business sphere, analyzing the level of EMS implementation in Czech enterprises and discussing essential advantages of EMS (as understood by the businesses) for the promotion of sustainable development concept. Attention is paid to the use of other voluntary tools contributing to the promotion of this concept in business practice (mainly environmental accounting).*

Keywords: *sustainable development, environmental management systems, environmental accounting*

1. INTRODUCTION

Many theoretical and practical discussions try to answer the question whether the implementation and maintenance of environmental management systems contributes to the concept of sustainable development (Schaltegger and Figge, 2000; Schaltegger et al., 2003). Environmental management systems (EMS) complement company management in a way that largely respects the company relation to the environment (even in excess of legal requirements) and relations to the company environment, its employees, customers and general public, regarding their environmental interests (Mikoláš and Moucha, 2004). Main stress is put on the prevention and its main principle is sustainable improvement (Veber, 2002). The systems represent a significant tool of alteration of the company approach to the protection of environment. Protection of the environment becomes an integral part of management activities.

The aim of the paper is to map the perception of sustainable development concept in Czech enterprises and to discuss the significance of EMS for its promotion in business practice. The paper is based on research results, focusing on the companies that have already implemented EMS.

2. RESEARCH CHARACTERISTICS

The paper summarizes the outcomes of research, carried out by the Czech Environmental Management Centre and the Czech Environmental Information Agency in 2005 with the aim to evaluate the EMS importance for promotion of sustainable development concept in company practice. To find out primary information, a questionnaire survey was used, addressing 1265 organizations. The questionnaire was filled out

and returned by 224 companies (i.e. rate of return 17.7%). Only the enterprises that already use an EMS were included in the examined sample (that is 222 organizations altogether). The sample mainly represents large and medium-size enterprises with annual turnover of over 100 million CZK (see Fig. 1). Mostly

processing industry (52% of the respondents) and civil engineering (25% of the respondents) were represented in the sample. Among the respondents were top management (55% of the respondents) and middle management representatives (34% of the respondents).

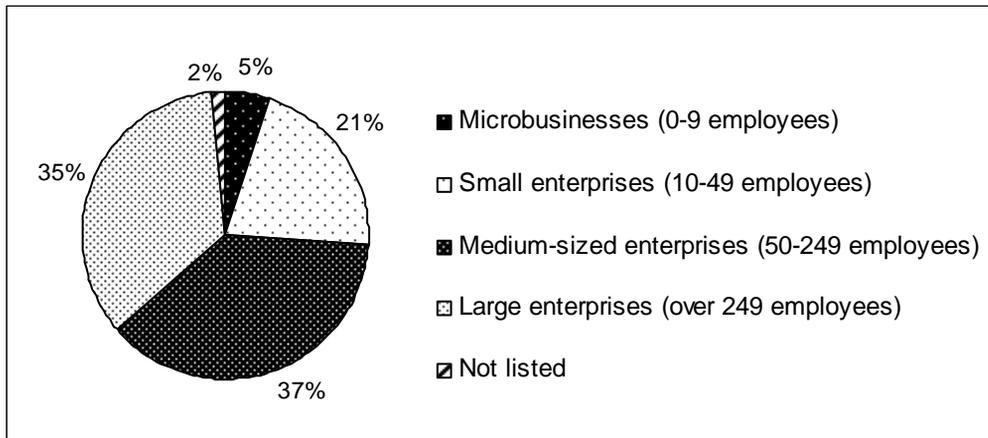


Figure 1. Examined sample (according to company size); n=222

With the aim to compare the differences in aspect of EMS between enterprises of different size χ^2 goodness-of-fit test was used.

3. BASIC RESEARCH RESULTS

3.1 What Is Practical Understanding of “Sustainable Development” (see Fig. 2)?

The most popular definition describes sustainable development as a development that satisfies the needs of recent generation without endangering the ability to satisfy the needs of future generations (i.e. definition A) (Brundtland, 1991) – 62% respondents. This definition is known especially within the representatives of processing industry. 129 respondents consider this definition most precise (i.e. 58%). 40% of the respondents know the definition of sustainable development based on the three pillars balance (i.e. definition B). 33% respondents indicated that this definition best characterizes sustainable development. With the growing size of

enterprises, the percentage of the three-pillar definition defenders increases. However, this phenomena was not confirmed statistically (χ^2 goodness-of-fit test, $\chi^2 = 10.707$, $df = 9$, $P = 0.296$). Only 13% of the respondents have been acquainted with sustainable development as the ability to secure such development of knowledge and ethical potential to be able to overcome global challenges (threats) – i.e. definition C. This definition is known mainly to top management. 4% of the respondents consider this definition as best characterizing sustainable development (that is top management in processing industry). Only 9% of the respondents joined the statement that sustainable development is completed by commercial success (i.e. achieving profit) in an organization (i.e. definition D). This opinion has been supported mainly by small enterprise representatives, although the differences were not significant (χ^2 goodness-of-fit test, $\chi^2 = 4.569$, $df = 3$, $P = 0.206$). Only 1 enterprise representative considers this notion the best definition (a representative of a large processing company).

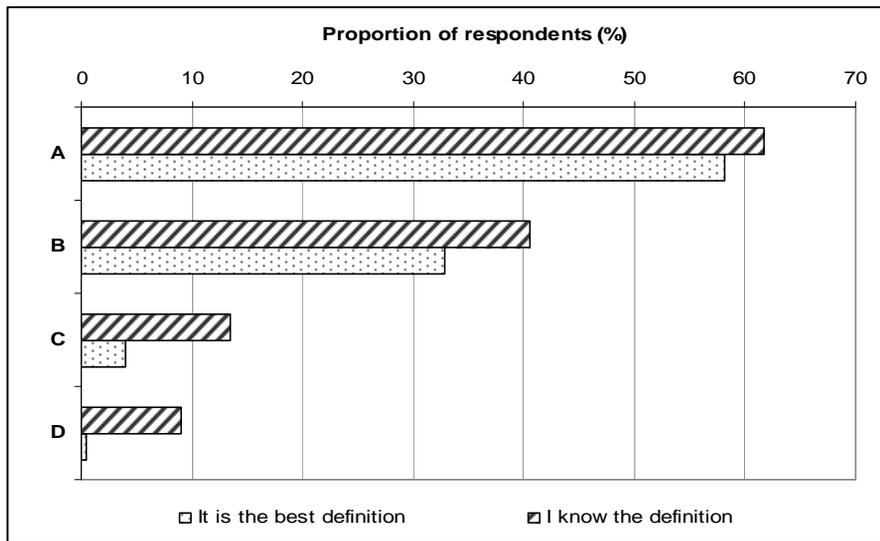


Figure 2. Perception of sustainable development; n=222

58% of the respondents consider the most descriptive definition that sustainable development satisfies the needs of recent generation without endangering the ability to satisfy the needs of future generations. This definition stresses careful approach to the environment. In context of sustainable development understanding, there are 65% respondents who believe that the existing enterprises comply with the requirements of sustainability. This way, they complete the recent needs, as well as those in near future.

33% of the respondents state that the three-pillar definition is best. 78% out of them confirmed that the existing enterprises positively fulfill the social, economic and environmental objectives.

4% of the respondents view sustainable development as human ability to secure the knowledge and ethical potential advancement with the aim to overcome global challenge (threat). 89% out of them believe that the existing enterprise is a product and resource of knowledge-based potential.

Therefore we can state that the enterprises view sustainable development mainly in context of careful approach to the environment; fewer enterprises are aware of the need of equality between the three pillars: economic, social and environmental. 67% of the overall number of respondents believes that the existing business activities are realized in line with the

sustainable development principles (this is the way they understand them). 91% of the respondents indicated that their company contributes to sustainable development of the society. Positive contribution to sustainable development has been confirmed especially by the representatives of micro-businesses (100% of the respondents asserted that the company complies with the sustainability criteria) and small and large enterprises. However, the differences among enterprises of different size were not significant (χ^2 goodness-of-fit test, $\chi^2 = 5.350$, $df = 3$, $P = 0.148$).

3. 2 Level of EMS Implementation

Examined sample consists of the enterprises that have already implemented EMS at the time of the research. The addressed companies implemented the systems mainly according to ISO 14001. 91% out of the 222 companies are holders of ISO 14001 Certificate, 6% have ISO 14001 Certificate and register in EMAS program at the same time, and 3% of the respondents implemented the system, but its certification or registration has not been carried out yet. The importance of management systems has been proven by the fact that 97% of the respondents have implemented the quality management system (ISO 9001). In

EMAS program register both processing industry and civil engineering enterprises. There are representatives of large, medium-sized and small companies as well as representatives of micro-businesses.

The companies that certified the system according to ISO 14001 or have been introducing the system according to this standard (altogether 209), made the assessment of environmental aspects that they can influence and reported on the company impact on the environment. Environmental aspects that company can influence are assessed by 54% of the respondents, representatives of all size categories in processing industry – homogeneously ($\chi^2 = 3.597$, $df = 3$, $P = 0.308$) – and civil engineering. Environmental communication through the reports on company impact on the environment is realized only by 36% of the respondents; mainly the representatives of large companies in processing industry. As the size of the companies increases, the percentage increases

in terms of the respondents who carry out environmental communication through voluntary reports on company impact on the environment, too (56% of the respondents of the large companies, but only one micro-business). These differences are significant ($\chi^2 = 3.597$, $df = 3$, $P < 0.001$).

Representatives of 92% enterprises (of the overall examined sample) confirmed that the management gets involved in environmental problems in consequence of EMS implementation (see Fig. 3). The percentage of the respondents who asserted that the management pays regular attention to the environmental performance grows with the increased size of the companies ($\chi^2 = 13.552$, $df = 6$, $P = 0.035$); environmental performance is monitored and evaluated in regular intervals. Regular evaluation of the environmental performance is carried out mainly by processing industry (confirmed by 81% of the respondents in given category).

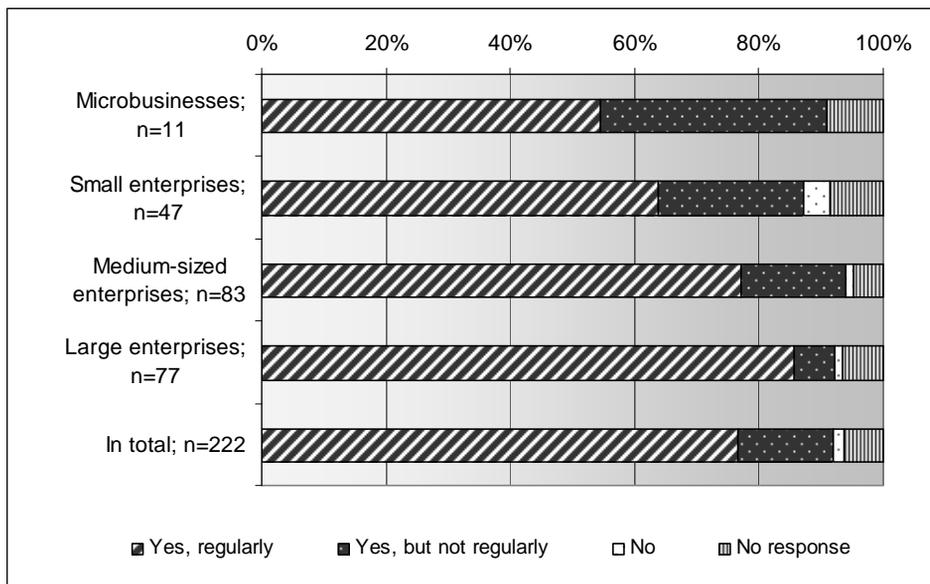


Figure 3. Evaluation of environmental performance (according to company size)

Employees participate in the process of the company environmental performance improvement in almost all the companies (98% of the respondents). Only 1 respondent indicated that the employees do not participate (the representative of a large processing company).

43% respondents of the examined sample stated that their organization conditions the selection of its business partners by EMS implementation (see Fig. 4). The research demonstrated that with the increased size of the companies grows the percentage of the respondents who integrated the environmental aspect into the

selection of business partners ($\chi^2 = 9.078$, $df = 3$, $P = 0.028$). 56% of the respondents of large companies link the selection of business partners to the implementation of EMS. The results can be compared with similar research realized in the second half of 2003. Then 28% of the respondents considered EMS implementation a significant criterion in selection of business partners and 66% of the

respondents understood EMS as an auxiliary criterion. The comparison demonstrates that the attitude of an enterprise to the environment is an important criterion in selection of business partners. Accepting the commitment of continual improvement of environmental performance can be a competitive advantage in the existing conditions.

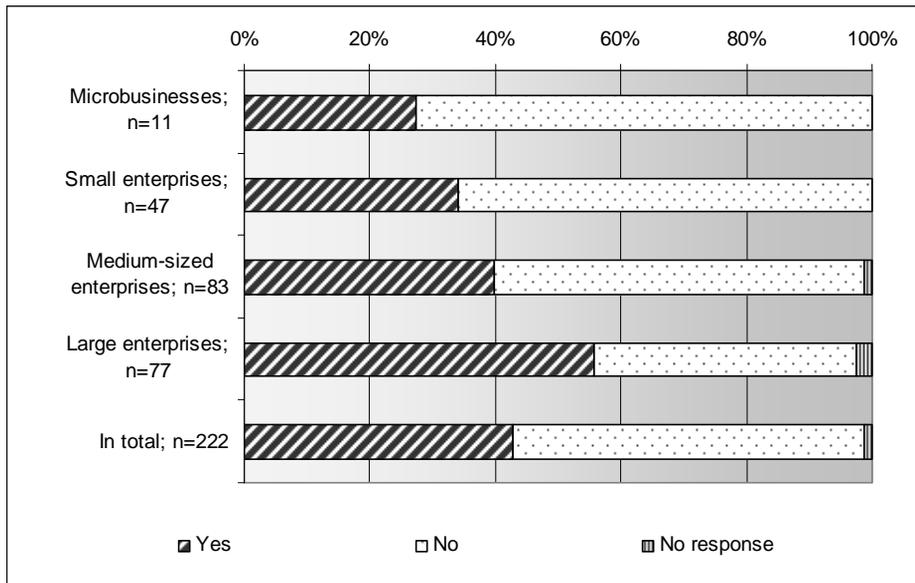


Figure 4. EMS implementation as a criterion in the selection of business partners

76% of the enterprises took measures in 2004 that resulted in significant reduction of the impacts of company activities, products and services on the environment. This means that they have been improving their environmental performance (one of the sustainable development pillars). As the respondents say, realized measures have been connected with the benefit in other fields. 16% of the respondents

indicate social benefits of such measures (improvement of working environment). Almost 14% of the respondents confirmed economic benefit of the realized measures for environment protection. 13% of the respondents asserted positive response from general public, business partners and public administration.

3. 3 EMS and Sustainable Development

Sustainable development is an integral part of strategic management (company strategy) for more than 59% of the respondents. Large enterprises as well as micro-businesses, medium-sized and small ones work with sustainable development concept. 91% of the respondents believe that implementation and maintaining of EMS

contributes to sustainable development of an enterprise. This opinion has not been confirmed by the representatives of micro-businesses and small enterprises; however, the differences were not significant ($\chi^2 = 6.399$, $df = 3$, $P = 0.094$).

The research demonstrated that EMS is beneficial for the improvement of company environmental performance (74% of the

respondents), and it has other advantages, such as:

- Increase of economic effectiveness (59% of the respondents);
- Improvement of the relations with the interested parties (general public, business partners and public administration) – 54% of the respondents;
- Improvement of social welfare conditions (working environment, occupational health and safety) – 51% of the respondents;

- Growth of knowledge potential (41% of the respondents);
- Providing of information for environmental communication with the stakeholders (27% of the respondents).

Representatives of individual size-type companies (see Tab. 1) and individual branches (see Tab. 2) understand EMS advantages differently.

Table 1. EMS advantages (according to company size)

Advantages	In total (n = 222)	Micro-businesses	Small enterprises	Medium-sized enterprises	Large enterprises	X ² goodness-of-fit test		
						Chi-square	df	P
Proportion of respondents (%)								
Environmental performance improvement	74	45	62	72	88	17.187	3	0.001
Economic advantages	59	27	55	58	68	7.226	3	0.065
Improvement of relations with public...	54	73	55	49	52	2.359	3	0.501
Social welfare conditions	51	55	51	57	45	2.047	3	0.563
Growth of knowledge	41	73	36	40	38	5.303	3	0.151
Information on environmental performance	27	55	26	30	19	6.501	3	0.090

- Respondents from large companies explicitly confirm EMS advantage for environmental performance management (88% of the respondents) and declare the economic benefit of the system (68% of the respondents). On contrary, they do not mention the significance of EMS as an information resource in terms of environmental performance (this advantage is notified by only 19% of the respondents).
- Respondents from small enterprises notify the significance of EMS for a company

environmental performance management, but they do not sound as explicit as the large- and medium-sized enterprises. 62% of the respondents confirmed the same opinion in this size category.

- Representatives of micro-businesses see the benefits of EMS differently (see Tab. 1).
- Variations of EMS understanding appear in different branches (see Tab. 2).

Table 2. EMS advantages (according to branches)

Advantages	Processing industry (n=115)	Civil engineering (n=56)	X ² goodness-of-fit test		
	Proportion of respondents (%)		chi-square	df	P
Environmental performance improvement	83	63	8.013	1	0.005
Economic advantages	65	54	2.135	1	0.144
Improvement of relations with public...	49	61	2.196	1	0.138
Social welfare conditions	52	54	0.030	1	0.864
Growth of knowledge	36	41	0.470	1	0.493
Information on environmental performance	23	32	1.429	1	0.232

The research has demonstrated that implementation of EMS contributes to sustainable development. The companies explicitly confirm its positive impact on environmental performance, especially large and medium-sized enterprises and processing industry notify of its economic advantages. Half of the respondents see the system benefit in the field of occupational health and safety and improvement of working environment. Smaller companies do not perceive the indicated advantages so explicitly. They rather notify EMS significance in terms of the relations with public, business partners and public administration bodies (most frequently in civil engineering) and its advantage for the growth of knowledge.

3. 4 Use of Other Voluntary Tools Contributing to Sustainable Development

Organizations involved in the research use other voluntary tools in relation to the improvement of environmental performance, such as environmental accounting. This is a frequently applied tool which integrates two

pillars of sustainable development (economic effectiveness and environmental performance) (Gray and Bebbington, 2000; Schaltegger and Burritt, 2000; Bennett et al., 2003). The environmental accounting system focuses on the costs spent on material consumption, energy and water consumption and waste management. Such costs are labeled as environmental costs. 67% of the respondents confirmed that their companies trace and evaluate these costs regularly. The companies pay attention especially to the costs occurring in relation with the environmental legislation requirements (86% of the respondents), and to the prevention and other environmental management costs (59% of the respondents). 22% of the respondents trace and evaluate the material costs of non-product outputs. The information gained from the environmental accounting system has been mostly used by the company management to support the decision making processes (97% of the respondents). The information is also used for external reporting (25% of the respondents); this is mainly indicated by small companies. The research explicitly confirmed that the information on environmental costs is (or would be) of certain benefit for company management (88% of the respondents). 73% of the respondents are aware

of the significance of this information for both economic and environmental management. The results show that for 82% of the respondents the environmental aspects and impacts, as well as their economic results, form an integral part of decision making processes on future capacities (i.e. investment appraisal). 28% of the respondents asserted that they apply the principles of cleaner production in their firms; 6% (mainly processing industry) use eco-labelling and 4% (mainly large companies) use the life-cycle assessment.

4. CONCLUSION

The most popular definition views sustainable development as a development that satisfies the needs of recent generation without endangering the ability to satisfy the needs of future generations. Almost half of the respondents know the definition based on three-pillar

balance. Only one third of the respondents, however, consider the latter the most characteristic definition.

91% of the respondents believe that their company contributes to sustainable development of the society, and pursuing of this concept in business practice is helped by EMS implementation. The problems of environment protection have been regularly discussed by company management as a consequence of EMS implementation. Companies take measures resulting in a significant reduction of negative impact of company activities, products and services on the environment. All the employees participate in the improvement of environmental issues. Almost 50% of the companies condition the selection of their business partners by EMS implementation. EMS explicitly enables an enterprise to improve its environmental performance, bringing economic profit and improvements in social field.

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