

## ENVIRONMENTAL ACCOUNTING IN THE CZECH REPUBLIC

J. Hyršlová, P. Mísařová, D. Némethová

**Received: June 30, 2006**

### Abstract

HYRŠLOVÁ, J., MÍSAŘOVÁ, P., NÉMETHOVÁ, D.: *Environmental accounting in the Czech Republic*. Acta univ. agric. et silvic. Mendel. Brun., 2006, LIV, No. 6, pp. 57–68

The aim of the paper is to demonstrate the existing state of environmental accounting as used in business and to discuss the shift of system application, focusing on the enterprises that have already implemented the environmental management systems. The paper summarizes the research outcomes of 2005, carried out by the Czech Environmental Management Centre and the Czech Environmental Information Agency. The research was targeted at the experience of companies with an implementation and operation of the environmental accounting system in the Czech Republic. The subject of the research was tracing and evaluating of environmental costs and benefit of the system of environmental accounting for company management.

economic-environmental efficiency, accounting, environmental costs

Incorporation of the sustainable development principle into the company practice may significantly promote the improvement in the field of economic-environmental efficiency (eco-efficiency). The concept of eco-efficiency was, for the first time, discussed in scientific literature in the beginning of 1990s. Awareness of this concept spread thanks to the organisation Business Council for Sustainable Development (BCSD)<sup>1</sup>, and a scientific publication presented on the summit in Rio in 1992. The basic idea of eco-efficiency was defined by BCSD (BCSD 1993):

Eco-efficiency may be achieved by supplying such products, goods and services which will be competitive, satisfy human needs and increase quality of life, with gradual reduce (mitigation) of environmental impacts and with consumption of resources within the framework of the whole life cycle which will be at least on the level of the estimated carrying capacity of the Earth.

Company strategy concentrating on significant improvement of eco-efficiency is designated as a win-win strategy - it means considerable improvement both of economic situation of the company, and of its

---

<sup>1</sup> Since 1995, the name of this organisation is World Business Council for Sustainable Development (WBCSD).

environmental performance<sup>2</sup> (Walley and Whitehead 1994). If a sound approach to the environment and improvements of economic performance belong among the aims of the company, then it is obvious that the management, as well as other interested parties, must have at their disposal information concerning the environmental aspects and impacts of the company activities, products and services on the environment, as well as their economic consequences (environmental costs and benefits). The above-mentioned information is provided by a system of environmental accounting.

In the latest years, various approaches to the conception of environmental accounting were gradually developed (for example: Gray 1993, Schaltegger and Stinson 1994, EPA 1995, Gray et al. 1996, Schaltegger et al. 1996, Schaltegger and Burritt 2000). The development of the systems of environmental accounting was influenced by many factors (see, for example: EPA 1995, Schaltegger et al. 1996, Schaltegger and Burritt 2000). As the most important factors, especially the following ones can be considered:

1. Philosophy and tools used within the framework of environmental accounting may significantly help in the development of the society, designated as sustainable development. The system enables to assess approach to the environment, and the environmental performance, and facilitates (mediates) communication in the field of the environmental protection between managers and other interested parties.
2. The company management uses various information to support its decision-making processes. Certain managers rely especially on financial information, others prefer non-financial information. A number of managers works, within the framework of their decision-making, with both financial and non-financial information. The need of information relates very closely to the level of management. For example, the environmental management on the level of the company must fulfil, especially, the following aims:
  - identify possibilities of improvements of the environmental performance of the company;
  - set priorities of the individual environmental activities and measures;
  - take into account environmental aspects within the framework of decision-making concerning

the present company outputs (products and services), as well as within the framework of research and development of new products and services;

- ensure transparency of the company activities relating to the environment;
- identify information needs of important interested parties, obtain the requested information and enable access of the users to this information (i.e., ensure the process of environmental communication);
- set the system of environmental management in the company (on lower levels of organisation), and standards of the environmental protection.

The management needs various types of information in order to fulfil the above-mentioned aims, for example:

- information on material and energy flows and on inventories, information relating to the individual company processes and outputs, and information on their environmental aspects and impacts on the environment;
- information on economic impacts of the company measures for protection of the environment, as well as information on economic consequences of damaging the environment;
- qualitative information on requirements (demands) of various interested parties, which ensue from influence of the company on the environment.

Therefore, the diversity of information needs requires, on the one hand, that needs of both internal and external users are filled within the framework of the system of environmental accounting, and, on the other hand, that the system provides information both in monetary units and in physical units (i.e., both financial and non-financial information) so that this information serves to support decision-making processes.

3. The significance of environmental accounting resides in interconnecting the economic field with the field of approach of the company to the environment. Its main interest is to increase awareness of the management on potential influence of environmental aspects of the company activities, products and services on economic performance of the company (these influences being either positive or negative). The environmental performance of

2 The conception of eco-efficiency does not involve the third pillar of sustainable development - the social field. At present, the efforts, especially of international organisations, concentrate on development of approaches to measurement of social performance in a quantitative way (Global Reporting Initiative 2004, McPhail and Davy 1998) and on interconnection of the social field with the conception of eco-efficiency. This will interconnect all three pillars of sustainable development.

the company (usually expressed in physical units) may, very significantly, influence its economic performance (expressed in financial indicators). The mutual relations may be depicted (recorded) for example by measuring the eco-efficiency (Schaltegger and Sturm 1998).

4. The fact that the system of environmental accounting works with non-financial information (i.e., with information expressed in physical units), is not a privilege of environmental accounting only. For example, according to C. Horngren and G. Foster, the conventional accounting system provides both financial and non-financial information, which helps to fulfil the company aims (Horngren and Foster 1987). It means that this conception of the accounting system existed before the development of the system of environmental accounting, and independently on it. The company management has always concentrated on improvement of material and energy efficiency with the aim to improve economic results of the company. For example:
  - the efficiency of the production process is deduced from the indicator: input materials for a unit of the product;
  - knowledge of material and energy flows (information is in physical units) is a necessary precondition for determination of their money expression (in monetary units).

Within the framework of the system of environmental accounting, information comprised in the conventional accounting is broadly used.

5. Environmental accounting is a very important source of information for the environmental management of the company. It provides information which forms a basis for finding places and activities which burden the environment and cause economic losses to the company, and for proposals of the measures resulting not only in improvement of the environmental performance of the company, but also in improvement of its economic results. It is a source of information supporting decision-making, for example, in the field of a strategy for compliance with rules, regulations and standard in the environmental field, in the field of designing and projecting products and processes, investment decision-making, location of equipment, waste management, decision-making concerning products, risk management, evaluation of products, management of purchase activities, cost management, cost allocation etc.

Implementation of environmental accounting into the practice of Czech enterprises in the second half of the 1990s mainly consisted in the monitoring and evaluation of environmental costs. The need to carry

out environmental costs management arose from an increase in financial resources which the enterprises expend on environmental protection or in connection with environmental damage. In the enterprises in a number of industries, environmental costs have become a very significant cost item and the enterprises start to pay increased attention to them. An integral part of decision-making processes in an enterprise there also become information on environmental aspects and impacts. Detailed and dynamic system of environmental cost data record-keeping and processing has been established in a number of enterprises. The enterprises particularly trace costs connected with waste management, costs resulting from non-compliance with the environmental protection regulations, and costs of purchased services relating to the environmental management systems. In the enterprises, information on environmental costs were largely not interconnected with information on material and energy flows (for example, with the data on exploitation of resources and on waste production in a broad sense – the amounts and types of emissions of pollutants to the air or amounts and composition of waste waters).

In the second half of the 1990s, a very important instrument of a change of the enterprise sector approach to the environment became the incorporation of these issues in the management activities – so-called environmental management systems (EMS) started to be implemented. The enterprises in the Czech Republic consider EMS not only a significant instrument to mitigate the environmental impacts of their activities, but are also very well aware of effects in business area. The fact of being granted ISO 14001 certificate or the registration in EMAS programme extends the possibilities in the fields of export, public contracts and also business support. Right in connection with implementation of EMS, the enterprises have started to become aware of the fact that the environmental protection is related with expending of financial resources. On the other hand, it is evident that waste disposal and environmental damage also bring about costs and are furthermore associated with negative reactions of the interested parties. Within the framework of implementation of EMS, activities having negative environmental effects as well as significant environmental aspects and impacts of the enterprise operations, products and services are identified. The enterprises, in addition to information on the environmental aspects and impacts of their operations, have gradually started to also make use of information on material and energy flows and the related costs.

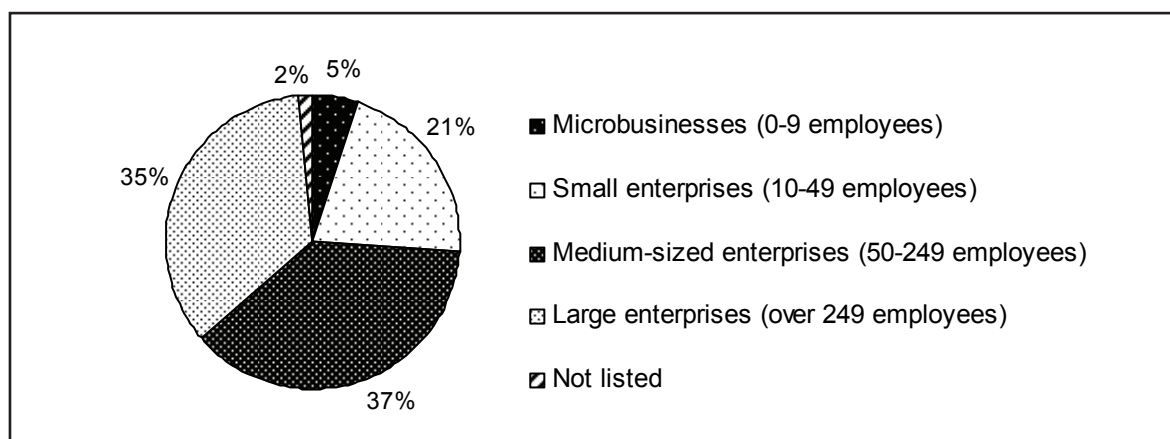
The development in the field of application of environmental accounting after 2000 is documented by research conducted by the University of Pardubice and by Brno University of Technology in 2002 (Fedorová

et al. 2002, Hyršlová and Böhmová 2002). In total 208 enterprises having EMS implemented were addressed. Filled-in questionnaires were received from 89 enterprises, i.e. rate of return of 43%. Four fifths of the respondents considered information on the environmental costs to be beneficial to the enterprise management, and 76% of the respondents individually monitored the environmental costs. It has resulted from the research that especially the costs connected with waste management, environmental pollution fees, environmental damage penalties and purchased services relating with EMS are usually considered the environmental costs in the enterprises. The research has shown that in the decision-making again only costs of waste disposal are taken into consideration, however, neither the purchase costs of material which proceeds to the waste flows, nor the costs of the processing of non-product output are taken into account. The research has shown that of significance for the decision-making processes in the enterprise is also the monitoring of environmental costs in particular department (centre).

The aim of the paper is to demonstrate the existing state of environmental accounting as used in business and to discuss the shift of system application, focusing on the enterprises that have already implemented the EMS.

## METHODOLOGY

In 2005, Czech Environmental Management Centre and Czech Environmental Information Agency conducted research of the current status in the field of application of environmental accounting on microeconomic level<sup>3</sup>. To acquire primary information, a questionnaire survey was conducted. In total 1265 organizations were addressed. These were mainly the enterprises which at the moment of research conducting had EMS implemented. Filled-in questionnaires were received from 224 enterprises (rate of return 18%), of which 222 organizations have EMS implemented. In the text below, basic results of research are summarized; the examined sample includes only enterprises with EMS implemented (in total 222 organizations were included in evaluation). In the examined sample, mostly large and medium-sized enterprises with annual turnover exceeding 100 mil. CZK are represented (see Fig. 1). Of the total number, the largest portion is accounted for by processing industry enterprises (52% of enterprises) and by civil engineering enterprises (25% of enterprises). Among the respondents, both top management members (55% of the respondents) and middle management members (34% of the respondents) were represented.



1: The examined sample (according to enterprise size);  $n = 222$

With the aim to compare the differences in aspect of environmental accounting between enterprises of different size  $\chi^2$  goodness-of-fit test was used.

## BASIC RESULTS OF RESEARCH

The subject of research was first to find out whether

the term environmental accounting is known in business practice. Only 56% of the respondents replied to have come across the term environmental accounting. The significantly higher knowledge of this term was confirmed by large enterprises (71% of the respondents of this category; see Appendix) and by middle management representatives. Business practice per-

<sup>3</sup> Research was conducted within the framework of Research and Development project No. VaV-1C/4/13/04 **Application of Environmental Accounting on Microeconomic and Macroeconomic Levels**. The project was financed by the Ministry of the Environment. Co-author of the paper (J. Hyršlová) participated in the project execution.

ceives environmental accounting especially as the management tool at all enterprise levels (87% of the respondents). Its subject of interest is information on the environmental aspects and impacts and their economic consequences.

The next term which was paid attention to within the framework of research, is environmental costs. The research has confirmed that the term environmental costs is better known in business practice in comparison with the term environmental accounting; 80% of the respondents have come across this term. In this case as well, the knowledge of the term was mostly confirmed by large processing industry enterprises. 82% of the respondents include in environmental costs those cost items which are incurred by enterprise in connection with the requirements laid by environmental protection Acts (for example, costs relating to waste water treatment plant, costs of waste disposal, costs of environmental pollution fees). 52% of the respondents consider to be part of environmental costs also the costs expended voluntarily by enterprise on the environmental protection (for example, costs of implementation of EMS). Only 20% of the respondents stated that an integral part of environmental costs are also the costs expended by enterprise on purchase and processing of that part of materials which do not proceed into the products and leave enterprise in waste flows (for example, costs of production of rejects/wasters; material which is subsequently disposed of as waste). Aware of these costs are particularly processing industry enterprises (25% of the respondents in this category consider these costs an integral part of environmental costs) and also respondents belonging to top management members.

67% of the respondents have confirmed that environmental costs in their enterprises are monitored and evaluated; 30% of the respondents individually pay attention to environmental costs, 37% of the examined enterprises then pay attention to these cost items within the framework of common cost analyses. On Fig. 2, results of research in this field with regard to enterprise size are summarized. It is evident that these cost items are paid more attention to with increasing enterprise size; which is confirmed also by  $\chi^2$  goodness-of-fit test ( $P < 0.001$ ; Appendix). Environmental costs are monitored in 83% of large enterprises, of which in 47% these costs are monitored and evaluated individually. Environmental costs are particularly traced in the processing industry enterprises; 77% of the respondents from this industry have confirmed to do so.

The enterprises pay attention particularly to those costs which they incur in connection with the requirements laid by environmental protection Acts (86% of the respondents) and costs which they voluntarily expend on the environmental protection (59% of the

respondents). Only 22% of the respondents monitor and evaluate also the costs expended by enterprise on purchase and processing of that part of materials which do not proceed into the products and leave enterprise in waste flows (this largely applies to the representatives of the processing industry enterprises).

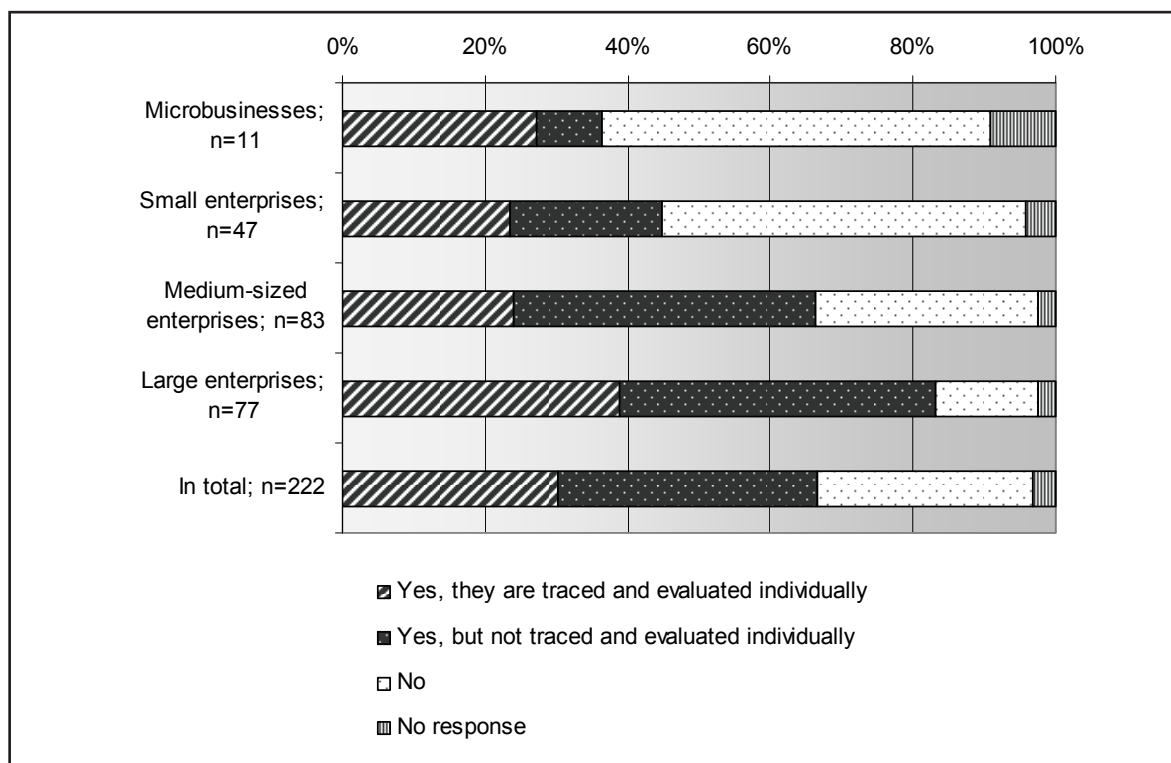
Environmental costs are mostly traced and evaluated for an enterprise as a whole (84% of the respondents) and in departmental channels (24% of the respondents). Small businesses trace the environmental costs for the business as a whole. Medium-sized and especially large enterprises pay significantly higher attention to the monitoring of environmental costs in departmental (centres) channels. Indeed, 34% of the respondents from the category of large enterprises have confirmed to do so (see Appendix). The monitoring of environmental costs in products and processes channels is paid only very small attention (even in the case of large enterprises).

Information acquired from the system of the tracing and evaluation of environmental costs is mostly used by company management to support the decision-making processes (97% of the respondents). However, information is also used within the framework of external reporting (25% of the respondents); the use for the purposes of external reporting is significantly higher in small businesses (see Appendix).

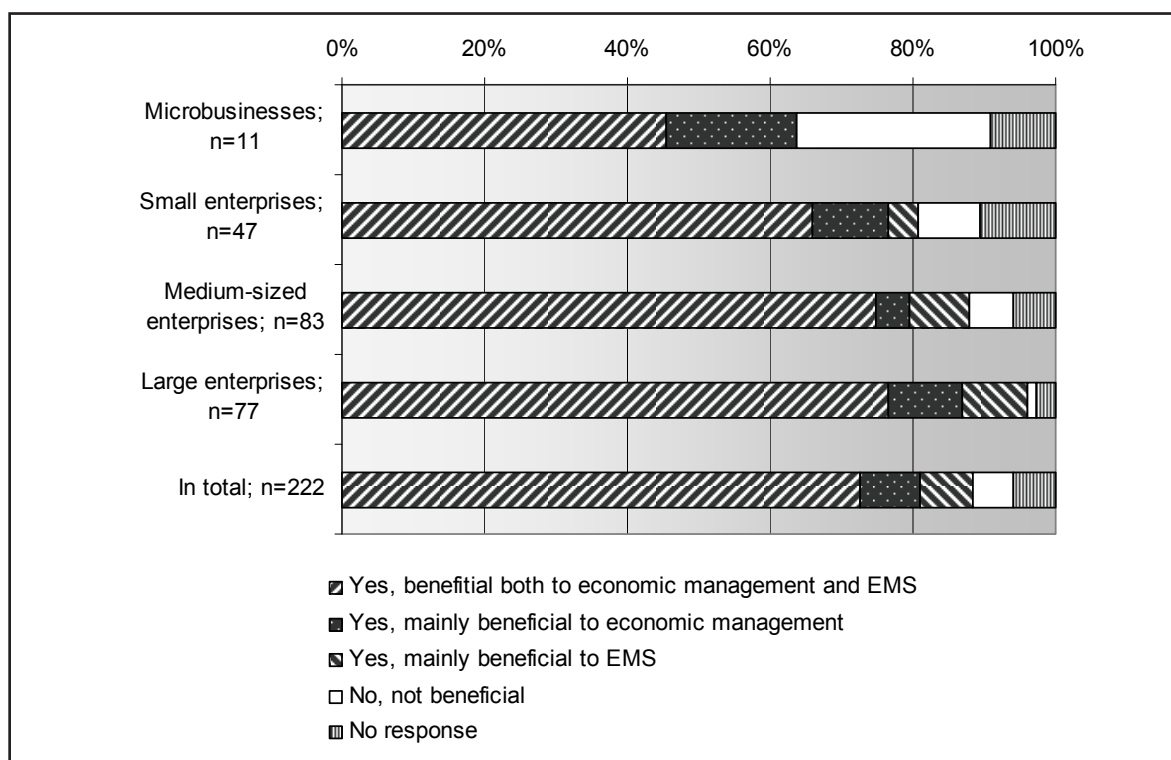
Within the research, attention was also paid to finding out whether, in the respondents' opinion, information on environmental costs are (or would be) beneficial to company management (see Fig. 3). The research has definitely confirmed that information on environmental costs are (or in the respondents' opinion would be) beneficial to company management (88% of the respondents). 73% of the respondents are aware of the significance of such information for both economic and environmental company management. With the increasing enterprise size, also the importance of such information is rising. Such information is considered important particularly by the representatives of middle management (92% of the respondents belonging to middle management members pointed out the importance of information for enterprise management).

Under the current conditions, particularly decision-making on the future capacities is of large significance for enterprises. In conducting the research, within the framework of decision-making on investments, attention was also paid to assessment of environmental aspects and impacts and their economic consequences (see Fig. 4). It has resulted from the research that for 82% of the respondents the environmental aspects and impacts and their economic consequences are taken into account in the decision-making processes relating to the future capacities.





2: Are environmental costs monitored and evaluated?

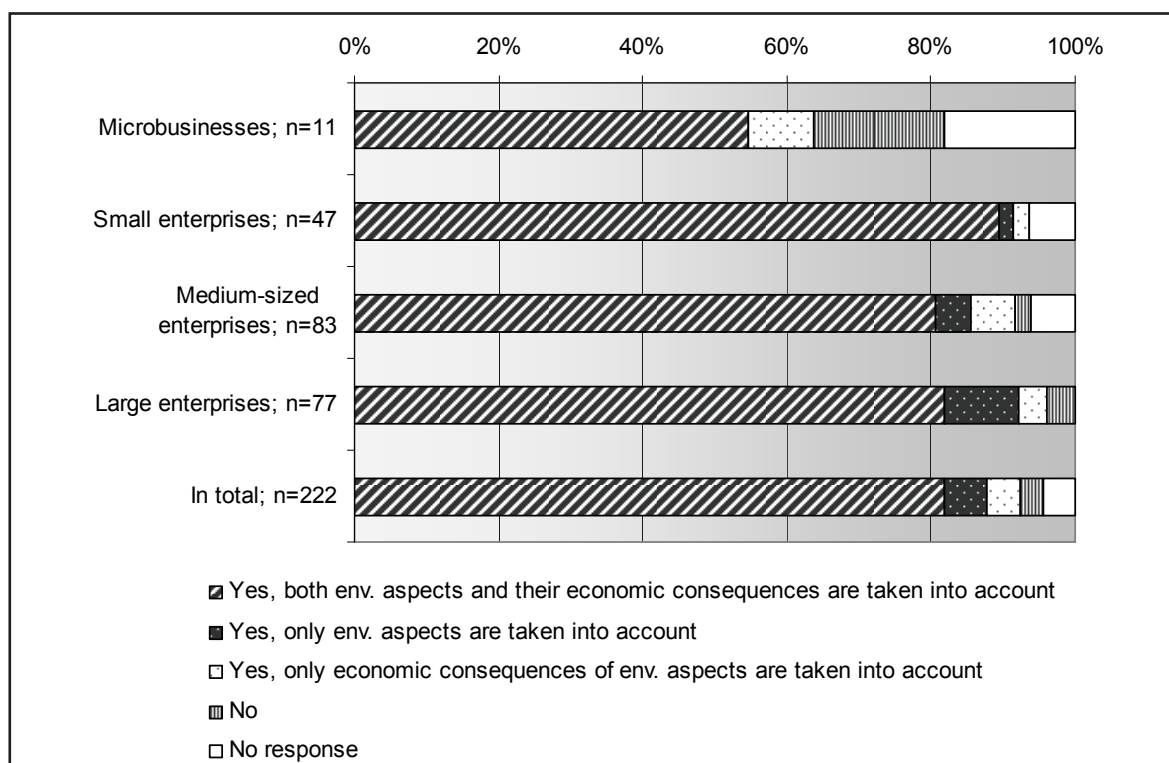


3: Is or would information on environmental costs be beneficial to enterprise management?

## DISCUSSION

The research realized in 2005 clearly demonstrates

that the enterprises that use EMS realize the importance of the information about environmental costs and they consider the information beneficial for the



4: Are the environmental aspects and impacts and their economic consequences taken into account in the decision-making on investments?

economic and environmental company management. This is the reason why environmental costs in Czech enterprises have been traced and evaluated. The businesses also pay attention to the waste and emission control costs and the costs occurring in relation to voluntary environmental protection (i.e. prevention and other environmental management costs). The number of enterprises that integrate material costs of non-product outputs into their decision-making processes is gradually growing; such trend can be seen mainly in processing industry. Environmental costs have been traced and evaluated mainly for the enterprise as a whole unit. About 25% of the respondents collect and use the information on environmental costs spent in the individual company divisions (centres). This is closely connected to the implementation of responsibility accounting models in large enterprises. Only marginal attention is paid to environmental costs monitoring in terms of products and processes.

The current status in the field of implementation of environmental accounting in the Czech Republic continues to be characterized by the fact that the tracing of environmental costs in enterprises is not largely understood to be part of integrated system of the monitoring and evaluation of material, energy and money flows. For the environmental accounting to be able to provide relevant information to support the decision-making

processes in enterprise, it is necessary to pay particular attention to defining the environmental costs incurred and benefits gained by enterprise through its environmentally friendly approach. For some enterprises it is advisable to also dispose of information on where the environmental costs are incurred and what environmental costs are expended in connection with the particular outputs (products) and processes. With regard to worldwide activities in the field of environmental protection and to efforts aimed at sustainable development of the society it is evident that enterprises increasingly consider their environmental approach an integral part of business strategy and for the investment projects make no difference between the „environmental“ and the „other“ ones. The issues of environmental protection are an integral part of all company processes. This means that every investment project must be assessed in a comprehensive way – all its costs and benefits, its effect on company performance and on environmental performance have to be taken into account. The quality of the decision-making processes can be enhanced particularly through the incorporation of all relevant cost and revenue items in the project evaluation and through the improvement of the procedures in allocating the environmental costs (it means through detailed information on the environmental costs relating to the particular products and processes).

## Appendix: Basic Results of Research

	In total	Micro-businesses	Small enterprises	Medium-sized enterprises	Large enterprises	X <sup>2</sup> goodness-of-fit test		
						X <sup>2</sup>	df	P
Do you know the term environmental accounting? (n = 222)						12.592	3	<b>0.006</b>
Yes	56%	45%	49%	45%	71%			
Which of the definition of environmental accounting is the most suitable? (n = 124)						5.453	6	0.487
monitoring costs spent to eliminate environmental impacts	4%	0%	4%	3%	5%			
monitoring costs spent to respect law in field of environmental protection	7%	0%	17%	8%	4%			
management tool at all enterprise levels	87%	100%	78%	86%	89%			
Do you know the term environmental costs? (n = 222)						3.442	3	0.328
Yes	80%	73%	72%	77%	87%			
Which of the cost item does belong to environmental costs? (n = 177)								
costs connected with requirements laid by environmental protection Acts	82%	75%	79%	81%	87%	1.968	3	0.579
costs expended on environmental protection voluntarily	52%	25%	44%	52%	57%	3.788	3	0.285
costs of non-product outputs	20%	13%	21%	20%	21%	0.353	3	0.950
Are environmental costs monitored and evaluated? (n = 222)						27.606	6	<b>&lt; 0.001</b>
Yes, they are traced and evaluated individually	30%	27%	23%	24%	39%			
Yes, but not traced and evaluated individually	36%	9%	21%	42%	44%			
No	30%	55%	51%	31%	14%			
How do you understand environmental costs? (n = 148)								
costs connected with requirements laid by environmental protection Acts	86%	100%	86%	85%	88%	1.216	3	0.749
costs expended on environmental protection voluntarily	59%	50%	52%	56%	63%	1.094	3	0.778
costs of non-product outputs	22%	0%	14%	25%	25%	3.542	3	0.315
The tracing and evaluation of environmental costs (n = 148)								
for enterprise as a whole	84%	100%	95%	78%	86%	4.853	3	0.183
in products channels	3%	0%	0%	5%	3%	2.378	3	0.498
in departments (centres) channels	24%	0%	5%	24%	34%	11.627	3	<b>0.009</b>
in processes channels	5%	0%	0%	9%	3%	4.735	3	0.192



Appendix – continued: Basic Results of Research

	In total	Micro- businesses	Small enterprises	Medium-sized enterprises	Large enterprises	X <sup>2</sup> goodness-of-fit test		
						X <sup>2</sup>	df	P
Information about environmental costs are prepared for: (n = 148)								
company management	97%	75%	100%	98%	95%	6.845	3	0.077
within framework of external reporting	25%	50%	52%	18%	22%	9.813	3	<b>0.020</b>
other users	11%	25%	10%	4%	17%	6.821	3	0.078
Is or would information on environmental costs be beneficial to enterprise management? (n = 222)								
Yes, beneficial both to economic management and EMS	73%	45%	66%	75%	77%	16.366	9	0.060
Yes, mainly beneficial to economic management	9%	18%	11%	5%	10%			
Yes, mainly beneficial to EMS	7%	0%	4%	8%	9%			
No, not beneficial	6%	27%	9%	6%	1%			
Are the environmental aspects and impacts and their economic consequences taken into account in the decision-making on investment? (n = 222)								
Yes, both env. aspects and their economic consequences are taken into account	82%	55%	89%	81%	82%	14.680	9	0.100
Yes, only env. aspects are taken into account	6%	0%	2%	5%	10%			
Yes, only economic consequences of env. aspects are taken into account	5%	9%	2%	6%	4%			
No	3%	18%	0%	2%	4%			

## SOUHRN

## Environmentální účetnictví v České republice

Cílem tohoto příspěvku je poukázat na stávající stav v oblasti využívání environmentálního účetnictví podnikovou sférou a diskutovat posun v aplikaci systému se zaměřením na podniky, které mají zaveden EMS.

Článek shrnuje základní výsledky výzkumu, který byl realizován v roce 2005 Českým ekologickým manažerským centrem a Českou informační agenturou životního prostředí. Pro zjištění primárních informací bylo použito písemné dotazování. Osloveno bylo 1265 organizací. Vyplněný dotazník vrátilo 224 podniků (návratnost 18 %). Do zkoumaného vzorku byly zařazeny pouze podniky, které mají zaveden EMS (celkem bylo tedy do hodnocení zařazeno 222 organizací). Ve zkoumaném vzorku jsou zastoupeny především velké a střední podniky s obratem vyšším než 100 mil. Kč ročně. Nejvyšší zastoupení mají podniky zpracovatelského průmyslu a z odvětví stavebnictví.

Podniková praxe vnímá environmentální účetnictví především jako nástroj řízení na všech podnikových úrovních. Předmětem jeho zájmu jsou informace o environmentálních aspektech a dopadech a jejich ekonomické důsledky. 67 % respondentů potvrdilo, že jsou v jejich firmách sledovány a vyhodnocovány environmentální náklady. Podniky věnují pozornost především nákladům, které podniku vznikají v souvislosti s požadavky zákonů na ochranu životního prostředí, a nákladům vynakládaným podnikem dobrovolně na ochranu životního prostředí. Pouze 22 % respondentů sleduje a vyhodnocuje i náklady, které podnik vynaložil na pořízení a zpracování té části materiálů, které nepřecházejí do výrobků a odcházejí v odpadních proudech. Environmentální náklady jsou nejčastěji sledovány a vyhodnocovány za podnik jako celek a po linii útvarů. Informace získané ze systému sledování a vyhodnocování environmentálních nákladů jsou využívány především podnikovým vedením na podporu rozhodovacích procesů a v rámci externího výkaznictví. Výzkum jednoznačně potvrdil, že informace o environmentálních nákladech jsou (nebo by podle mínění respondentů byly) přínosné pro řízení podniku. 73 % respondentů si je vědomo významu těchto informací jak pro ekonomické řízení podniku, tak i pro environmentální řízení. V případě 82 % respondentů jsou environmentální aspekty a dopady a jejich ekonomické důsledky součástí rozhodovacích procesů o budoucích kapacitách.

ekonomicko-ekologická účinnost, účetnictví, environmentální náklady

This work was supported by the Grant Agency of the Czech Republic under project No. 402/06/1100.

## REFERENCES

- BCSD (Business Council for Sustainable Development). Getting Eco-Efficient: How Can Business Contribute to Sustainable Development? In *Proceedings of the First Antwerp Eco-Efficiency Workshop*. Antwerp: Industry and Environment Office of the United Nations Environment Programme and the Commission of the European Communities, 1993, XI.
- EPA (United States Environmental Protection Agency): *An Introduction to Environmental Accounting As A Business Management Tool: Key Concepts And Terms* (EPA 742-R-95-001). 1<sup>st</sup> ed. Washington: United States Environmental Protection Agency, Office of Pollution Prevention and Toxics, 1995. (MC 7409).
- FEDOROVÁ, A. et al.: *Informace o environmentálních nákladech pro environmentální management*. Zpráva z řešení grantového projektu GAČR (registrační číslo 402/02/0092). Brno: VUT Brno a Univerzita Pardubice, 2002. 250 p.
- GRAY, R.: *Accounting for the Environment*. 1<sup>st</sup> ed. New York: Markus Weiner Publishing, 1993.
- GRAY, R. et al.: *Accounting and Accountability: Changes and Challenges in Corporate Social and Environmental Reporting*. 1<sup>st</sup> ed. London: Prentice Hall Europe, 1996.
- GRI (Global Reporting Initiative). *Sustainability Reporting Guidelines 2002* [online] [cited 15 November 2004] Available from internet URL <http://www.globalreporting.org>
- HORNGREN, C., FOSTER, G.: *Cost Accounting: A Managerial Emphasis*. 6<sup>th</sup> ed. Englewood Cliffs: Prentice – Hall, 1987.
- HYRŠLOVÁ, J., BÖHMOVÁ, S.: *Informace o environmentálních nákladech pro environmentální management*. Dílčí zpráva z řešení grantového projektu GAČR (registrační číslo 402/02/0092). Pardubice: Univerzita Pardubice, 2002. 44 p.

- MCPHAIL, K., DAVY, A.: *Integrating Social Concerns into Private Sector Decision Making: A Review of Corporate Practices in the Mining, Oil and Gas Sectors*. 1<sup>st</sup> ed. Washington: World Bank, 1998.
- SCHALTEGGER, S., BURRITT, R.: *Contemporary Environmental Accounting*. 1<sup>st</sup> ed. Sheffield: Greenleaf Publishing, 2000.
- SCHALTEGGER, S., STINSON, C.: *Issues and Research Opportunities in Environmental Accounting* (discussion paper 9124). 1<sup>st</sup> ed. Basel: Wirtschafts-wissenschaftliches Zentrum WWZ, 1994.
- SCHALTEGGER, S., STURM, A.: *Eco-Efficiency by Eco-Controlling*. 1<sup>st</sup> ed. Zürich: VDF, 1998.
- SCHALTEGGER, S. et al.: *Corporate Environmental Accounting*. 1<sup>st</sup> ed. Chichester: Wiley and Sons, 1996.
- WALLEY, N., WHITEHEAD, B.: It's not Easy Being Green. *Harvard Business Review*, 1994, May/June 1994: 46–52.

## Address

Doc. Ing. Jaroslava Hyršlová, Ph.D., Katedra ekonomiky a managementu chemického a potravinářského průmyslu, Univerzita Pardubice, Studentská 95, 532 10 Pardubice, Česká republika, e-mail: jaroslava.hyrslova@upce.cz, Ing. Petra Misařová, Ústav účetnictví a daní, Mendelova zemědělská a lesnická univerzita Brno, Zemědělská 1, 613 00 Brno, Česká republika, e-mail: Petra.misarova@email.cz, RNDr. Danko Némethová, Ph.D., Centrum biostatistiky a analýz, Kamenice 126/3, 625 00 Brno, Česká republika, e-mail: nemethova@cba.muni.cz

