

Analysis of methods aimed at tracking of environmental costs in connection with company financial performance

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Abstract— The submitted paper is focused on the analysis of methods aimed at tracking of environmental costs in connection with financial performance of a company operating in the Czech Republic. Under current conditions the vast majority of manufacturing companies are situated in towns or industrial zones directly connected to infrastructure of a nearby town. This means a lot of advantages but on the other hand it brings many negative impacts on the environment and town life. We may say that in the Czech Republic some significant changes happened improving the relation and approach of companies towards the environment. This situation is obvious in multiple locations.

However there are still some areas where environmental issues are not considered seriously and the poor environmental conditions significantly affect lives and health of people. The increasing meaning of environmental protection has a strong impact on company activities. Companies are adapting themselves according to this trend either voluntarily or because of the relevant legislation.

The aim of the paper is to describe the issues associated with environmental costs tracking in companies and their impact on economic performance. The second part of the paper deals with the analysis of a questionnaire survey realized with companies situated in a town agglomeration or a close neighborhood. The goal of the questionnaire survey was to find out whether companies track their costs for reduction of negative impacts of their industrial activities on the environment, whether they invest into green technologies, how they track / manage storing of hazardous inventories that may put their close surroundings into jeopardy and negatively affect the town life.

We may conclude that the analysis of all environmental costs associated with environmental protection may lead to improvement of their management. In future this may result in overall reduction of such costs. Environmental costs may be reduced based on managerial decisions. This especially applies to investments and operating costs.

Keywords—Questionnaire survey, environmental costs, company performance, environmental costs analysis, environmental costs tracking methods, environmental protection, industrial zones, town, urbanized areas

I. Introduction

The constantly increasing importance of environmental protection becomes one of the top priorities and needs in

developed countries (companies). Pollution of environment is globally a significant economic, social and political problem.

Nowadays, with so many economical issues and harsh competition, it seems to be a good opportunity to focus on more environmentally friendly production, on reduction of material and energy demands of production, elimination of overall impacts, elimination of wastes and pollutants, both in manufacturing and business companies. This eco-friendly approach to environment is invoked by external and internal factors. The key external factors are legislation and public opinion. Internal factors are based on the active attitude of a company to environmental issues.

Monitoring of costs associated with environmental protection is the first precondition for their subsequent reduction that may positively affect the overall efficiency of the company and also the state of environment. An important management activity is decision making. Quality and outcomes of decision-making processes significantly affect company functioning and future development. As the company's attitude to environment is to be considered as an important aspect, decision-making processes should - beside strategic, tactic and operational levels - include also the environmental protection. Therefore there is a need to include this information into the company information system used for the decision-making purposes. This information system is referred to as "environmental accounting" and its part dedicated to collection of information for managerial purposes is referred to "environmental management accounting" (EMA).

Generally we can divide environmental costs into two main categories. The first covers costs directly affecting the company (corporate environmental costs). The second category includes costs the company is not responsible for (is not paying them) but they affect individuals, company and environment - so called negative externalities. Environmental protection is founded on legislation, but it also offers application of voluntary tools reaching beyond the scope of legislation. In the Czech Republic the applicable legislation is especially the Act No. 17/1992 Coll., on Environment, as amended. This law stipulates basic terms and principles of environmental protection, including obligations / responsibilities of all business entities with regard to maintaining and improving the environment.

II. Relation between environmental and economic performance

With their actions and activities companies are permanently affecting the environment. The impact on environment is especially determined on the basis of the amount of harmful activities the company is involved in. The better the company acts towards the environment, the higher environmental performance it shows and vice versa. All negative consequences of company actions on the environment are analyzed by individual items / events (e.g. release of pollutants in air, water, soil) and in relation to precise identification of corporate components. [1] [2]

Companies strive after the top performance by minimizing their costs - especially those associated with material inputs. Recently, with the effort to reduce consumption of natural resources, companies are under legislative pressure. This leads to increase of waste management prices. Together with the development of environmental legislation, state authorities apply some economic tools aimed at environmental protection. These economic tools, such as various taxes, fees, tradable emission permits, should direct consumers or other interested parties to the most eco-friendly variant.

Monitoring of environmental costs may be assured by various approaches and methods, such as environmental management accounting, sustainable development accounting, clean production method, environmental management systems EMAS and ISO standards. [3] [4] [5]

The main purpose of financial accounting is to collect and provide information on business aspects of company to external users. On the other hand management accounting collects and provides information to be later used by company management for managerial purposes. Environmental management accounting deals with identification, collection, estimating, analyzing, reporting and sharing information on material and energy flows, environmental costs and other material information to be used for decision-making purposes. [3]

Environmentally invoked financial consequences due to environmental behavior of a company affect company business results, i.e. its financial and economic performance. These are impacts on expenses and revenues, incomes and expenditures, assets and liabilities, resulting from the influence of company actions on the environment, that can be internalized (i.e. costs resulting from negative externalities may be reflected in internal costs of their generator). However not all company impacts on the environment may be internalized - there are also so called negative externalities that cause harm to other economic entities and general public.

On the other hand all these costs influence financial statements that are reported to the users of the accounting information. [6] This situation leads to increased costs and that is why the profit, own capital, debts, assets are influenced. [7]

III. Environmental management accounting as a tool of company management

Every company needs a proper information support for its decision-making processes. Under current conditions, EMA (environmental management accounting), as an element of environmental accounting, is becoming an important tool of support - its purpose is to provide company management with relevant information for decision-making. This tool is generally perceived as *"a part of management aimed at identification, collection, estimating, analyzing, reporting and sharing of information on material and energy flows, on environmental costs, as well as on other material information relevant for decision-making purposes within a company."* [8]

Environmental management accounting is a voluntary activity that may be included amongst voluntary tools of environmental policy in the Czech Republic. The main goal of this activity is to maintain and improve the quality of environment, life and health of population, as well as to meet requirements for sustainable development. EMA is a managerial tool that allows for efficient decision-making in various areas of corporate environmental policy, with a strong reference to environmental policy of the government. Information coming from EMA may be used by internal users (management) as well as external users. This information may be a part of company reports on environmental performance, intended for suppliers, customers, employees or investors. A great advantage of EMA is its universality as it may be used in big, medium-sized as well as small companies, in various industrial branches as well as in tertiary sector. It may be used to meet company overall needs or for individual operations / departments / product ranges only. [9]

Cost management may be assured by means of environmental management accounting. EMA is aimed at costs expended in connection with consumption of materials, energies and water, in connection with generation of / handling with wastes. These costs are referred to as *environmental costs* and are considered as a part of company operating costs. EMA is focused on identification, analyzing, management and reducing environmental costs through such actions / measures that not only bring economic effects but also positive environmental effects. [4] [9]

Corporate environmental costs have - from the environmental management accounting point of view - two basic elements, including the company costs expended on environmental protection. They cover all the costs associated with company activities aimed at *restriction* or *elimination* (as prevention) or *compensation* of already existing negative impact on the environment (charges for waste deposition / collection, waste sorting etc.). The second element is represented by costs associated with company activities that negatively affect the environment - sanctions, penalties and fines for air pollution etc.

IV. Results of the survey

This part of the paper is focused on the presentation of the results that came from our survey. The structure of companies was following: 40.00 % of analysed companies were micro companies due to rules valid in the European Union (assets and turnover lower than 2,000,000 EUR), small companies (assets or turnover lower than 10,000,000 EUR) were represented at 20.00 %, middle-sized companies (assets lower than 43,000,000 EUR and turnover lower than 50,000,000 EUR) were represented at 40.00 % of analysed companies and the rest of them were large companies.

The structure of legal form of the analysed companies is shown in the Figure 1.

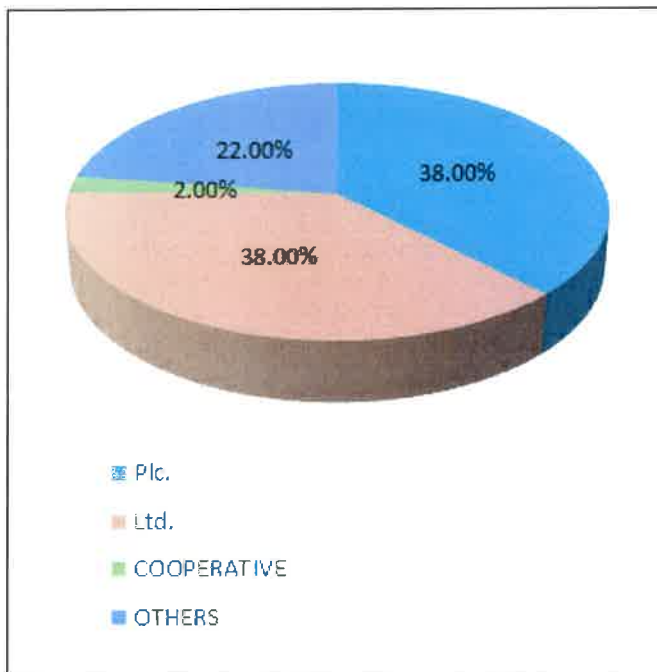


Figure 1. The structure of legal form of analysed companies

As it is clear from the Figure 1 the most used legal form of the analysed companies were Plc. with the share of 38.00 % and Ltd with the same share and the rest were other legal form of the business valid in the Czech Republic (such as cooperative, individual entrepreneur etc.)

The companies were asked to fill the information if they analysed costs incurred to reduce the negative impact of business activities on the environment. 42.00 % of them answered positively and the rest of them 58.00 % did not analyse these costs. The other question was focused on the problems of analysis of the financial performance of the company. 31.00 % of them answered that they registered in more detail the effects of these costs to the indicators by which evaluated the financial performance of the company as it is presented in Figure 2.

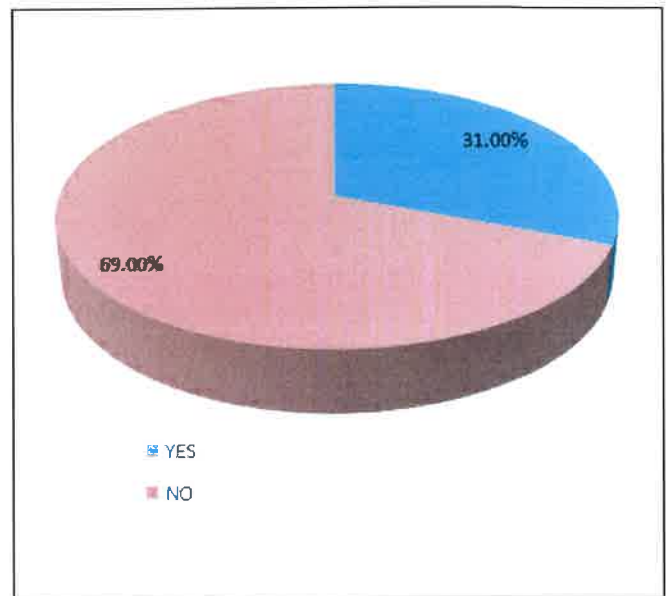


Figure 2. Evidence of the environmental costs for measurement of business performance

The Figure 3 presents the answer if the company invests into the environment friendly technologies. The result of this answer was quite surprising because only 29.00 % of the analysed companies do that and the rest is not interested in environment friendly technologies.

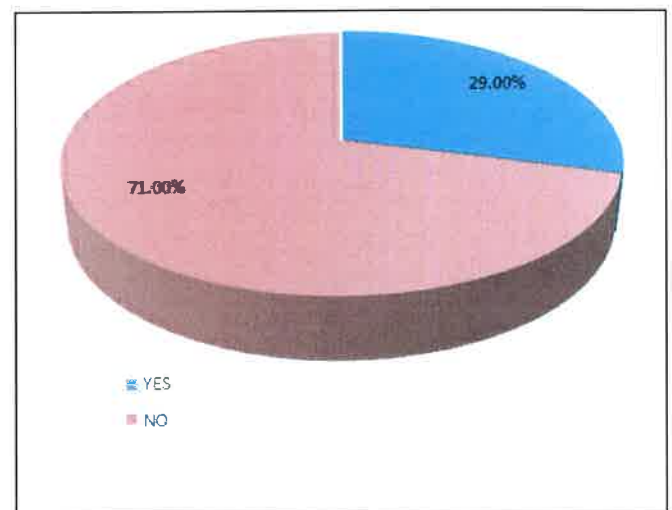


Figure 3. Investments into the environment friendly technologies

On the other hand at least 51.00 % of analysed companies in the Czech Republic record storage risk and hazardous inventory types separately (e.g. dangerous chemicals). The other question was focuses on the problems connected with the separate monitoring of the consumption of the recycled materials. Only 36.00 % of the companies that filled the survey answered this answer positively as it is presented in the Figure 4.

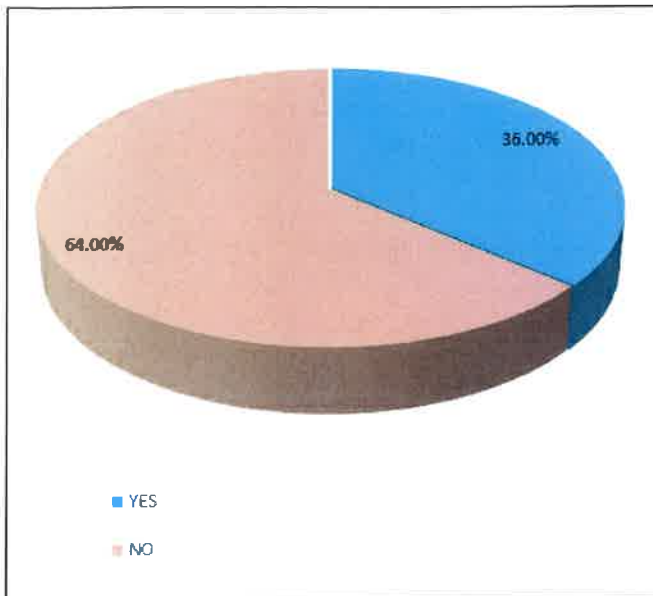


Figure 4. Separate monitoring of the consumption of the recycled materials

Due to this situation the companies were asked to answer if they used the Enterprise Resources Planning System for the evidence of environmental costs. Only 33.00 % of them used these types of system for their evidence. And these companies answered other question that was focused on the structure of used Enterprise Resource Planning Systems as it is shown in the Figure 5.

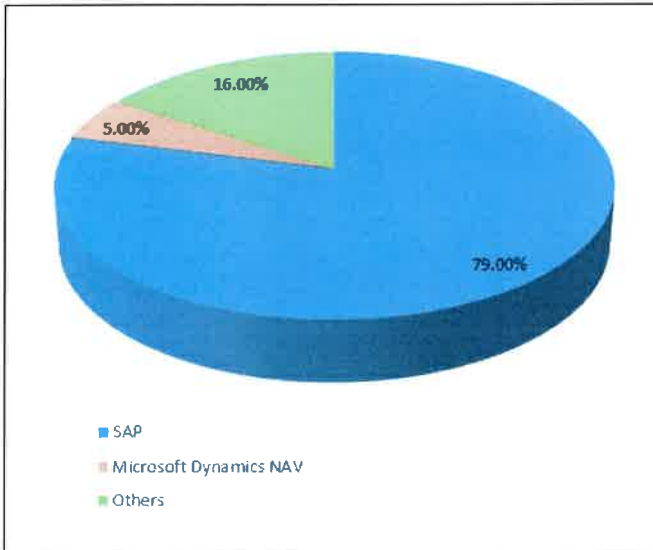


Figure 5. Structure of used ERP Systems of the analysed companies

The other questions were focused on the area of financial performance of the analysed company. Analysed subject was first asked if it prepared the financial analysis periodically. 64.00 % of them answered this question positively as it is presented in the Figure 6.

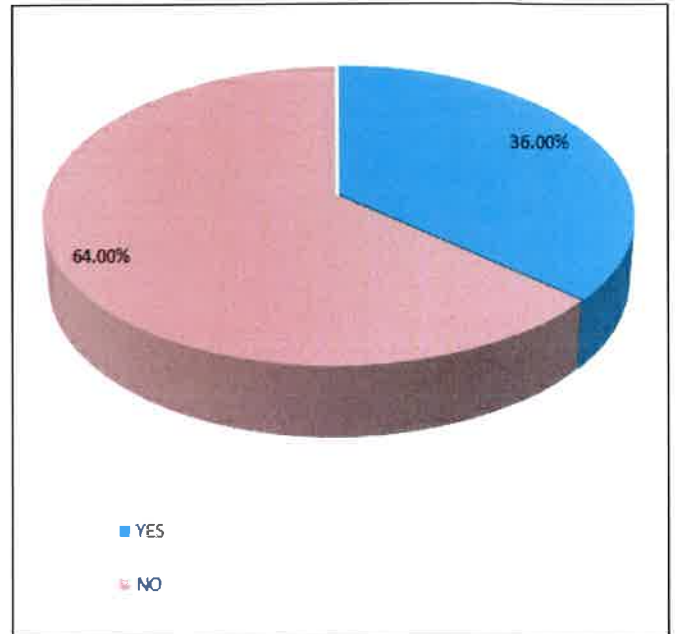


Figure 6. Periodical preparation of the financial analysis

The companies also stated which contemporary modern concepts of business performance measurement they used for the financial position measurement. 51.00 % of them use these modern concepts and it is possible to state that the most used methods were Economic Value Added (EVA), Market Value Added (MVA), discounted cash flow, net cash flow from investments, Shareholder Value Added (SVA) as it is shown in the Figure 7.

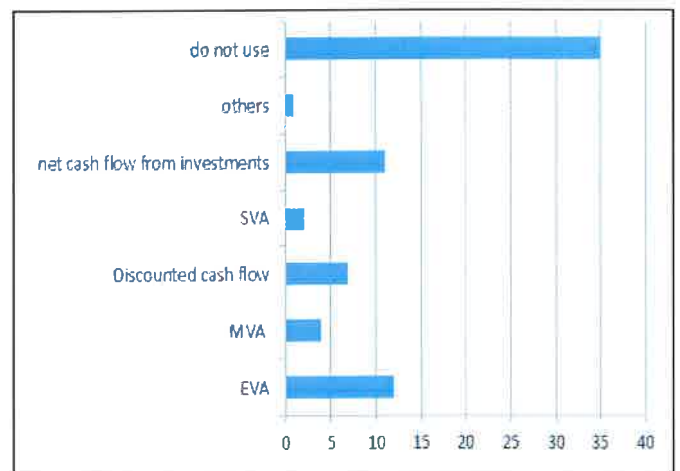


Figure 7. Percentage share of used modern concepts of business performance measurement

V. Conclusion

The main goal of the paper was to describe the issues associated with environmental costs tracking in companies in the Czech Republic and their impact on their financial performance and after that to publish research findings from survey that took place in March 2014 between specified group of enterprises. The analysis of environmental costs is important for responsible financial management of the company. While trying to reduce environmental costs, company management may proceed in various ways. Its final decision will be based on the assessment of overall economic efficiency of each particular measure / action. These may for instance cover eco-friendly technologies, raw materials, utilization of greener processes etc.

Without the separate evidence of environmental cost it is very difficult to express the costs connected with the protection of the environment. Enterprise Resource Planning Systems help to record and analyze the environmental costs of the company. Due to the situation that only 29.00 % of analyzed companies invest into the environment friendly technologies it is possible to state that there is a large potential for ecological investments to ensure better environmental protection in the Czech Republic. On the other hand there is very strict legislation that forces companies to invest more ecologically in the Czech Republic. Investments focused on environmental friendly technologies improve and better environment of urban areas and protect the health of inhabitants of the city.

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