

# CORPORATE KEY PERFORMANCE INDICATORS FOR ENVIRONMENTAL MANAGEMENT AND REPORTING

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## Abstract

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The paper presents main results of the research financed the Ministry of Environment of the Czech Republic in the project No. SP/4i2/26/07. It discusses the corporate key performance indicators for Environmental Management Systems certified by standard ISO 14001:2005 or/and by the Regulation (EC) No. 1221/2009, about voluntary participation of organizations in the Community Environmental Management and Audit Scheme (EMAS). These are used in an annual corporate environmental reporting of organizations with Environmental Management System and also in the annual statements of organizations with Environmental Management and Audit Scheme. It introduces key performance indicators and framework of corporate environmental reporting are based on the Methodical Guideline of the Ministry of Environment of the Czech Republic developed in the project No. SP/4i2/26/07. They are enlarged to economic and social area with using Global Reporting Initiative and RICON Group guidelines. The paper also introduces the proposal of further research in the development of corporate environmental, social and governance (ESG) performance indicators.

environmental management, environmental management and audit scheme, environmental performance, key performance indicators, ESG indicators, environmental reporting

## 1 Introduction

Institute of Biostatistics and Analyses of the Masaryk University started to work on the project No. SP/4i2/26/07 of the Research Programme of the Ministry of Environment of the Czech Republic (MoE): *Proposal of new indicators for continuous monitoring the efficiency of environmental management systems with respect to economic activities (NACE) and the system of environmental reporting with evaluation relationships among the environment, economy and society* in 2007. The main goal of the research in this project was to find out how to continuously and exactly monitor the development of the environmental impacts of chosen economic activities (i.e. NACE – Statistical classification of economic activities) and find relationships among environment, economy and society and transform them into *Key Performance Indicators* (KPIs) for the corporate environmental reporting of organizations with implemented Environmental Management Systems (EMS) certified by standard ISO 14001:2005 or/and

by the Regulation (EC) No. 1221/2009, about voluntary participation of organizations in the Community Environmental Management and Audit Scheme (EMAS), (EMAS III, 2009).

The research in this project was divided in the years 2007–2010 into three stages according to its particular targets as follows:

- a) Analysis and proposal of *Environmental Key Performance Indicators* in selected economic activities (from 1. to 18. month).
- b) Development of the *Methodical Guideline (Methodology)* of the MoE for setting KPIs in the selected economic activities (from 15. to 30. month).
- c) Development of the application software *INDICATORS* (from 20. to 39. month) for the calculation of environmental KPIs and corporate environmental reporting in the form of „open source“ software.

The chosen results of the research are summarized in the paper.

### 1.1 Used terminology

The *Environmental Performance* (EP) of an organisation is defined as results of an organisation's management of its environmental aspects. In the context of *Environmental Management Systems* (EMS) these results can be measured against the organization's *environmental policy* (i.e. overall intentions and direction of an organization related to its environmental performance as formally expressed by top management); *environmental objectives* (overall environmental goals, consistent with the environmental policy, that an organization sets itself to achieve); *environmental targets* (i.e. detailed performance requirements, applicable to the whole organization or parts thereof, that arise from the environmental objectives and that need to be set and met in order to achieve those objectives) and *other environmental performance requirements*.

*Environmental performance indicator* means a specific expression that allows measurement of an organisation's environmental performance (EMAS III, 2009).

*Environmental Performance Evaluation* (EPE) is the subject of international standard ISO 14031 *Environmental management – Environmental performance evaluation – Guidelines*, where EPE is defined as follows: *Process to facilitate management decisions regarding an organisation's EP by selecting indicators, collecting and analysing data, assessing information against EP criteria, reporting and communicating, and periodic review and improvement process*.

*Environmental performance criterion* (EPC) is described by ISO 14031 as “an organisation's environmental objective, target, or other intended level of EP set by its management”.

The standard ISO 14031 describes also two general categories of indicators for EPE: *Environmental Performance Indicators* (EPIs); and *Environmental Condition Indicators* (ECIs).

### 1.2 New approach for setting environmental KPIs

Viegas (1999) concluded that the process EPE defined by ISO 14031 is too complex including methods how to choose appropriate EPIs and ECIs and set up EPCs. Therefore, we analysed other approaches (Jasch, 2000), (G3, 2006), (Hřebíček, Mísařová, Hyršlová, 2007), (EMAS III, 2009), and developed *Methodology* (Hřebíček, Soukopová, Kutová, 2010) for selecting environmental KPIs in the paper.

Almost all duty environmental performance indicators are based on indicators of sustainable development which are designed for three areas – economic, environmental and social. Most of them are listed in the physical unit in which the indicators are measured, for some are given boundary or limit values. The environmental performance indicators are developed and used to monitor changes in the quality and condition of all elements of nature and the environment (i.e. air, water, soil, ecosystems etc.). Other sets of indicators are focused on human

health, social conditions, economic prosperity and conditions (DEFRA, 2006).

We propose environmental key performance indicators to provide businesses with a tool for the measurement of the environmental performance of organizations (Hřebíček, Soukopová, Kutová, 2010). They are quantifiable metrics that reflect the EP of a business in the context of achieving its wider goals and objectives. These environmental KPIs will help businesses to implement strategies by linking various levels of an organisation (business units, departments and individuals) with clearly defined targets and benchmarks of selected economic activities. Environmental KPIs are measures by which the performances of organizations, business units, and their division, departments and employees are periodically assessed.

Proposed environmental KPIs will be able commonly used by businesses, governments and non-governmental organizations to monitor, track and present to interested parties and the public overall progress on stated goals and benchmarks. Environmental KPIs will monitor whether goals and targets will be met or not, and can communicate the need for additional measures.

Unlike descriptive indicators, environmental KPIs focuses on the distance from a target, comparing actual conditions with a specific set of reference conditions. Ideally, environmental KPIs will report on results (e.g., a declining trend in emissions of carbon oxide to the atmosphere), not efforts (e.g., number of fines laid on companies out of compliance).

We based our proposal of environmental KPIs in the *Methodology* on the Annex IV of the Regulation (EC) No. 1221/2009 (EMAS III, 2009), Global Reporting Initiative Guidelines (G3, 2006) and RICON Group Guidelines (RICON, 2009). We continued in our previously research of environmental KPIs published in (Hřebíček, Růžička, 2007), (Hřebíček, Mísařová, Hyršlová, 2007), and (Hřebíček, Soukopová, 2008) to develop new ones.

## 2 Selecting environmental key performance indicators with respect to EMAS

We have focused only to core environmental KPIs, which relate to direct environmental aspects of the organizations. The remaining additional indicators of EP are contained in the *Methodology* (Hřebíček, Soukopová, Kutová, 2010) that is an output of second stage of the above introduced *Project*.

Organizations of all economic activities (according to NACE) should determine the environmental KPIs and, moreover, the organizations of the selected economic activities should choose additional environmental KPIs according to the significant environmental aspects. To do this, the internal (possibly external) environmental audit of EMS of organization can be used, on the basis of which the organization management will propose the additional KPIs in co-operation with an auditor or verifier of EMAS.

The European Commission (EC) shall, in consultation with Member States (MSs) of European Union (EU) and other stakeholders, develop sectoral reference documents that shall include: *best environmental management practice; environmental performance indicators for specific sectors*, where appropriate, benchmarks of excellence and rating systems identifying environmental performance levels. The EC may also develop reference documents for cross-sectoral use (EMAS III, 2009).

The EC shall take into account existing reference documents and environmental performance indicators developed in accordance with other environmental policies and instruments in the EU or international standards (ISO, G3 Guidelines etc.).

The Regulation (EC) No 1221/2009 specified, that the EC shall establish, by the end of 2010, a working plan setting out an indicative list of sectors, which will be considered priorities for the adoption of sectoral and cross-sectoral reference documents. So we consider common core KPIs for all sectors.

The core KPIs shall apply to all organizations in all economic activity sectors. They focus on performance of the organizations in the following key areas of the environment (EMAS III, 2009):

- a) *efficiency of material consumption;*
- b) *energetic efficiency;*
- c) *water management;*
- d) *waste management;*
- e) *biological diversity;*
- f) *emissions into the air;*
- g) *other relevant indicators of the influence of the organization's activity on the environment.*

When an organisation concludes that one or more core KPIs are not relevant to its significant direct environmental aspects, that organisation may not report on those KPIs. The organisation shall provide justification to that effect with reference to its environmental audit or review.

Each indicator, in accordance with the Annex IV of the Regulation (EC) No. 1221/2009 consists of:

- a) a figure A indicating the total annual input/impact in the given field;
- b) a figure B indicating the overall annual output of the organisation; and
- c) a figure R indicating the ratio between A and B.

Organizations should report on all these three figures for each indicator.

Data of the overall annual output of the organization, i.e. figure B, are the same for all the above-mentioned areas relating to the environment. However, they are adapted to various types of organizations, depending on their type of activity. The Regulation (EC) No. 1221/2009 distinguished:

- a) organizations operating in the production sector (manufacturing industry NACE code D),

where the total gross value-added<sup>1</sup> expressed in millions of currency of the Member State of EU (e.g. CZK - Czech Crowns) or total annual physical output expressed in tonnes must be reported;

- b) organization in non-industrial sectors (administration / services NACE codes G to P), where it shall relate to the size of the organization and expressed in the number of employees;
- c) small and medium organizations (SME), where the total annual turnover or the number of employees must be reported.

Figure B is one for the given organization and is common for all indicators.

Data on the total annual inputs/impacts in the given area, i.e. figure A, are described in the following paragraphs, where numbering of indicators is in compliance with numbering of indicators of G3 Guidelines (G3, 2006), which is mostly used in practices.

## 2.1 Material efficiency

**Indicator EN1** – concerning the “*annual mass-flow of different materials used*” (excluding energy carriers and water), expressed in **tonnes**.

*Explanation:* This is the material consumption in the organization according to weight, possibly volume. These are used materials in the organization including materials purchased from external suppliers, and further, the materials that are obtained from internal sources (bound production and mining activities). This indicator describes the contribution of the organization to the preservation of the global basis of sources and the efforts of the organization to reduce material intensity and to improve efficiency of its economy. These are the explicit aims of the OECD Council according to OECD Recommendation C (2008)40. For internal managers and other persons interested in the financial situation of the organization, the material consumption is related directly to the total operating costs. Internal monitoring of this consumption either according to product or according to the category of products enables monitoring of material efficiency and material flow costs.

The weight of all used material including material purchased from external suppliers, and further, the materials that are obtained from internal sources (bound production and mining activities) will be reported.

**Indicator EN2** – ratio of the used recycled input materials expressed in units **% of the total input materials**.

*Explanation:* Requirement of this indicator is to ascertain the ability of the organization to use recycled input materials. Use of these materials helps to reduce the demand of new natural materials and contributes to the preservation of the global basis of nat-

<sup>1</sup> Gross value-added or gross profit is calculated as sales of organization minus all costs directly related to those sales. These costs can include manufacturing expenses, raw materials, labor, selling, marketing and other expenses.



ural resources. The percentage content of the used recycled input material will be reported, with the use of the following formula:

$EN2 = (\text{Total amount of input used recycled materials} / \text{All used input materials}) \times 100$ .

Substitution of common material with the recycled one can contribute to the reduction of total costs of operation, which is important information for internal and other employees that are interested in the financial situation of the organization.

## 2.2 Energy efficiency

**Indicator EN3** – concerning the “total direct energy use”, the total annual energy consumption, expressed in **MWh** or **GJ**. The total annual energy consumption of the organization is possible to express also in units **tonnes of oil equivalents (TOE)**.

*Explanation:* The direct energy may be either in the primary form (e.g. natural gas for heating), or in the form of transient (intermediate) energy (e.g. electricity for lighting). Energy may be purchased, mined (e.g. coal, natural gas, oil), harvested (e.g. energy of biomass), captured (e.g. solar, wind power) or brought within the organization by other means.

*Total direct energy consumption = direct primary energy purchased + direct primary energy produced – a direct primary energy sold.*

**Indicator EN4** – concerning the “total renewable energy use”, the **percentage** of total annual consumption of energy (electricity and heat) produced by the organisation from renewable energy sources; it could be expressed in units: tonnes of oil equivalent (TOE) produced from renewable resources of energy.

*Explanation:* Renewable energy is obtained from natural processes that are continuously renewed. It includes electricity and heat generated from sun, wind, ocean, water power, biomass, geothermal resources, bio fuels and hydrogen obtained from renewable sources.

## 2.3 Water Management

**Indicator EN8** – concerning the “total annual water consumption”, expressed in  $m^3$ , i.e. in units  **$m^3$  / year**.

*Explanation:* The total volume of taken water in cubic meters per year ( $m^3$ ) will be reported according to the following resources:

- surface water, including water in rivers, lakes and wetland;
- roundwater;
- rain water collected directly and stored by the organization;
- waste water from some organization and
- water supplies from water distribution system or other public water supply service.

Information on water consumption in the organization can be obtained from the water meters, water bills, calculation derived from other information on water that are available or (if there are no water meters, bills or reference data), the organization's own estimates.

## 2.4 Waste management

**Indicator EN22** – concerning the “total annual generation of waste”, broken down by type, expressed in **tonnes**.

**Indicator EN22a** – concerning the “total annual generation of hazardous waste” expressed in **kilograms** or **tonnes**.

*Explanation:* Data on the quantity of waste created in the sequence of several years can indicate the level of development achieved by the organization in its effort to reduce waste. They can indicate also the potential improvement in the process of effectiveness and productivity. From the financial point of view, reduction of waste contributes to direct reduction of costs of materials and waste treatment.

## 2.5 Biodiversity

**Indicator EN11a** – concerning the “use of land”, expressed in  **$m^2$  of built-up area use of land**.

*Explanation:* Operating places owned, leased, managed by the organization will be reported. They can be located within or adjoin protected areas and areas with high value of biodiversity or such places that include protected areas and areas with high value of biodiversity outside protected areas.

In reporting on the use of land by the organization, we can identify and understand certain risks connected with biodiversity. Monitoring of its activities take place both in protected area and in areas with high value with respect to biodiversity outside protected areas, it enables the reporting organization to reduce risks of environmental impacts. It also enables the organization to manage impacts on biodiversity and to avoid bad decisions making. Failure in adequate management of such impacts may result in impairment of reputation, delay in obtaining building permissions and a loss of social approval with the organization's activity.

## 2.6 Emissions into the air

**Indicator EN16** – concerning the “total annual emission of greenhouse gases”, including at least emissions of  $CO_2$ ,  $CH_4$ ,  $N_2O$ , HFCs, PFCs and  $SF_6$ , expressed in **tonnes of  $CO_2$  equivalent**.

*Explanation:* Direct emissions of greenhouse gases from all sources owned or managed by the organization will be reported, including:

- Generation of electricity, heat or steam (as reported in EN3);
- Other combustion processes, like burning;
- Physical or chemical processing;
- Transportation of materials, products and waste;
- Conveyance of combustion gases (out gassing) and
- Volatile emissions.

Emissions from combustion processes and resources will correspond to direct primary energy from non-renewable and renewable sources, as reporting in EN3. Note that  $CO_2$  emissions from burning of biomass are not supposed to be included here

but should be reported separately according to GHG Protocol Corporate Standard (The Greenhouse Gas Protocol Corporate Standard – reworked edition).

Further, also indirect emissions of greenhouse gases arising in generation of purchased electricity, heat or steam will be reported (this corresponds to the energy consumption reported according to EN4).

Emissions of greenhouse gases are the main reason of climate changes and are managed by the United Nations Framework Convention on Climate Change (UNFCCC) and, consequently, by the Kyoto Protocol and Copenhagen Accord. In result, various regulatory and supporting national and international systems (such as negotiable certificates related to the climate – the so-called emission allowances) focus on the control of volume of greenhouse gases emissions and reward their reduction.

**Indicator EN20a** – concerning the “total annual air emission”, including at least emissions of SO<sub>2</sub>, NO<sub>x</sub> and PM, expressed in **kilograms** or **tonnes**.

### 3 Other additional indicators of the effect of the organization's activity on the environment

Each organization will annually reporting on its effect on the environment concerning specific environmental aspect determined in the environmental report or statement, and possibly will take into consideration sector reference documents, which will be prepared by the EC later on the basis of EMAS (EMAS III, 2009).

#### 3.1 Products and services

In G3 Guidelines (G3, 2006), other additional indicators are also included relating to the significant environmental aspects of the organization, which are described below for products and services:

**Indicator EN26** – Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation expressed in the **number of initiatives**.

*Explanation:* This indicator assesses the actions the reporting organization has taken to reduce the negative environmental impacts and enhance the positive impacts of its product and service design and delivery.

Considered initiatives in the reporting period to mitigate the most significant environmental impacts of products/service groups in relation to: materials use (e.g., use of non-renewable, energy-intensive, toxic materials); water use (e.g., volumes used during production and/or use); emissions (e.g., GHG, toxic, ozone-depleting emissions); effluents (e.g., quality of water used during production and/or use); noise; and waste (e.g., non-reclaimable, toxic materials/compounds).

Indicator informs quantitatively the extent to which environmental impacts of products and services have been mitigated during the reporting period. If use-oriented figures are employed (e.g., water use of washing machine), clearly indicate the underlying assumptions regarding consumption

patterns or normalization factors (e.g., 10% less water use per 5 kg of laundry).

**Indicator EN27** – sold products sold and their packaging materials that are reclaimed by category expressed in **percentage**.

*Explanation:* The percentage of reclaimed products and their packaging materials for each category of products (i.e., a group of related products sharing a common, managed set of features that satisfy the specific needs of a selected market) using the following formula:

EN27 = (products and their packaging materials reclaimed within the reporting period / products sold within the reporting period) x 100.

Indicator EN27 provides insight into the extent to which the reporting organization's products, components, or materials are collected and successfully converted into useful materials for new production processes. It also provides insight into the degree to which the organization has designed products and packages capable of being recycled or reused. Indicator EN27 can be a particular source of competitive differentiation in sectors facing formal requirements to recycle products and their packaging materials.

#### 3.2 Compliance with legislation

**Indicator EN28** – Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations expressed in **thousand of CZK**.

*Explanation:* Indicator EN28 relates to the regulations concerning all types of environmental matters (i.e. emissions, waste water and waste as well as used materials, energy, water and biodiversity), applicable to the organization.

Administrative or legal penalties for violence of the compliance with environmental laws and regulations will be stated and significant fines and other than pecuniary penalties will be reported.

### 4 Additional economic indicators

We did not used in Methodology economic KPIs from G3 Guidelines (G3, 2006), but we oriented to Japan approach, where RICOH Group established another system for economic KPIs that we used. Environmental KPIs must accurately evaluate the status of sustainable EMS of organization and facilitate its further improvement. It introduced terms Economic benefit and Environmental conservation costs (RICOH, 2009).

*Economic benefits* refer to benefits that organisation obtained by environmental conservation activities and which contributed to its profits in some form. Economic benefits are classified into five categories as follows:

1) *Substantial effect:* This means economic benefits that fall into either of the following two cases:

- Cash or cash equivalent is received as a benefit. This corresponds to “realized gain” in financial accounting.

- The amount of savings in such costs that would have occurred if environmental conservation activities had not been conducted. This amount is not recognized in financial accounting.
- 2) *Estimated substantial effect*: Substantial contributions to sales or profits whose value cannot be measured without estimation. They include improving the EP of a product, which leads to an increase in sales or profit.
- 3) *Secondary effect*: The expected amount of contribution in the case that expenditure on environmental conservation activities is assumed to have contributed to profits for the organisation. If environmental conservation costs are assumed to be costs that are indispensable for the organisation to conduct its operations, for example, it can be safely said that such costs contribute to profit in some form. In practice, out of the effects generated by environmental conservation activities, those which do not appear as an increase in sales or profit or a reduction in costs are represented in monetary value calculated by the formula specified for each item.
- 4) *Incidental effect*: Expenditure on environmental conservation activities can help avoid the occurrence of environmental impact. Therefore, it can be safely said that the expenditure contributed to the avoidance of such damage of environmental impact that would have taken place without the expenditure. In practice, the incidental effect is computed by multiplying the expected amount of damage by an occurrence coefficient and impact coefficient.
- 5) *Social effect*: Social effect means such effect that is generated by expenditure on environmental conservation activities not for the organisation but for society. In practice, social effect means the amount of reduction in the expense of electric power and waste disposal that is enabled through environmentally-friendly products for customers.

*Environmental conservation costs* refer to expenditure on environmental conservation activities (in a broad sense), and consist of *Environmental Investments* and *Environmental Costs* (in a narrow sense). *Environmental Investments* correspond to "Investments in fixed assets" in financial accounting. The amount of environmental investments is distributed as environmental costs over the service life of fixed assets in accordance with depreciation procedures. *Environmental Costs* correspond to the "period cost" in financial accounting. (Depreciation cost of environmental investments is included.)

Now, we can set economic KPIs based on the three elements shown below.

#### 4.1 Economic Benefits of Environmental Conservation Activities

**Indicator EC1** – indicating whether activities in environmental conservation are economically rational expressed by

$EC1 = \text{Economic benefits} / \text{Environmental conservation costs}.$

*Explanation*: Activities in sustainable EMS can be considered economically rational if the EC1 is one or greater (i.e., the economic benefits are equal to or greater than the environmental conservation costs).

**Indicator EC2** – indicating whether activities in environmental conservation are economically and social rational expressed by

$EC2 = (\text{Economic benefits} + \text{social cost reduction}) / \text{Environmental conservation costs}.$

*Explanation*: Activities in environmental conservation can be considered economically rational if the quotient is one or greater (i.e., the sum of economic benefits and social cost reduction is equal to or greater than the environmental conservation costs).

**Indicator EC3** – indicating the efficiency of environmental improvements made by the project/investment activity which is expressed by

$EC3 = \text{Environmental impact reduction} / \text{Environmental conservation costs}.$

*Explanation*: EC3 is used to evaluate the efficiency of environmental improvements made by the project/investment activity concerned.

#### 4.2 Environmental Efficiency of Business Activities

**Indicator EC4** – indicating the environmental impact of business activities and whether those activities respond to public needs and expectations is justifiable which is expressed by

$EC4 = \text{Sales} / \text{Total environmental impact}.$

*Explanation*: Total environmental impact is considered as physical or monetary amount. EC4 is used to evaluate the environmental impact and whether it is appropriate in relation to the size of the business.

**Indicator EC5** – indicating whether the business activity generates an appropriate level of profit in relation to its environmental impact which is expressed by

$EC5 = \text{Value-added business activities} / \text{Total environmental impact}.$

*Explanation*: EC5 is used to determine whether the business activity generates an appropriate level of profit in relation to its environmental impact.

KPIs are summarized in the Table I.

### 5 Environmental reporting

The environmental report of organization shall contain at least the elements and shall meet the minimum requirements as set out for example in (Hřebíček, Soukopová, 2008), Hřebíček, Soukopová, Kutová, 2010):

- a) a description of the organisation and a summary of its activities, products and services and its re-

## I: Key performance indicators

No.	indicator	unit	value
<b>Efficiency of material consumption</b>			
EN1	annual mass-flow of different materials used	tonnes	
EN2	ratio of the used recycled input materials expressed in units	% of the total input materials	
<b>Energy efficiency</b>			
EN3	total direct energy use	MWh or GJ	
EN4	total renewable energy use	percentage of total annual consumption of energy (electricity and heat) produced by the organisation from renewable energy sources	
<b>Water management</b>			
EN8	total annual water consumption	m <sup>3</sup> /year	
<b>Waste management</b>			
EN22	total annual generation of waste	tonnes	
EN22a	total annual generation of hazardous waste	kilograms or tonnes	
<b>Biodiversity</b>			
EN11a	use of land	m <sup>2</sup> of built-up area use of land	
<b>Emissions into the air</b>			
EN16	total annual emission of greenhouse gases	tonnes of equivalent CO <sub>2</sub>	
EN20a	total annual air emission	kilograms or tonnes	
<b>Products and services</b>			
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation expressed	number of initiatives	
EN27	sold products sold and their packaging materials that are reclaimed by category	%	
<b>Compliance with legislation</b>			
EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	thousand of CZK	
<b>Economic Benefits of Environmental Conservation Activities</b>			
EC1	indicating whether activities in environmental conservation are economically rational	Economic benefits / Environmental conservation costs.	
EC2	indicating whether activities in environmental conservation are economically and social rational	(Economic benefits + social cost reduction) / Environmental conservation costs	
EC3	indicating the efficiency of environmental improvements made by the project/investment activity	Environmental impact reduction / Environmental conservation costs.	
<b>Environmental Efficiency of Business Activities</b>			
EC4	indicating the environmental impact of business activities and whether those activities respond to public needs and expectations is justifiable	Sales / Total environmental impact.	
EC5	indicating whether the business activity generates an appropriate level of profit in relation to its environmental impact	Value-added business activities / Total environmental impact.	

- relationship to any parent organisations as appropriate;
- b) the environmental policy and a brief description of its EMS;
- c) a description of all the significant direct and indirect environmental aspects which result in significant environmental impacts of the organi-

- sation and an explanation of the nature of the impacts as related to these aspects;
- d) a description of the environmental objectives and targets in relation to the significant environmental aspects and impacts;
- e) a summary of the data available on the EP of the organisation against its environmental objectives and targets with respect to its significant environ-



mental impacts. Reporting shall be on the KPIs and on other relevant existing EP indicators as set out Chapter 2 of this paper;

- f) other factors regarding EP including performance against legal provisions with respect to their significant environmental impacts;
- g) a reference to the applicable legal requirements relating to the environment;
- h) the name of accreditation company or the licence number of the environmental verifier and the date of validation.

The annual environmental report of any organisation shall contain at least the elements and shall meet the minimum requirements as set out in above points e) to h).

The organisation shall be able to demonstrate to Auditor Company of EMS or the environmental verifier of EMAS that anybody interested in the organisation's EP can easily and freely be given access to the information required for evaluation of environmental KPIs.

The organisation in the Czech Republic shall ensure that this information is available in Czech language if the organisation is certified or registered in the Czech Republic, and if applicable in (one of) the official language(s) of those MSs, in which sites covered by the corporate registration are located.

## 6 Environmental, social and governance reporting

*Environmental, social and governance reporting* (ESG reporting) tools designed for the corporate *ESG performance* appear as essential at present. The overall company performance plays a key role in its corporate strategic policy and sustainability of success. The creation of reliable methods of company performance measurement where concurrent acting of multiple factors is in play can be considered a prerequisite for success not only in decision making, but also with regard to corporate governance, comparison possibilities, development of healthy competition environment etc.

Therefore, we have continued in our research from the development of environmental KPIs to "*the construction of methods for multifactor measurement of company performance in chosen economic (CZ-NACE) activities and the creation of a modifiable and broad-spectrum methodology of their putting into practice*."

This main objective of the new research is specified by its partial research targets:

1. *Analysis of the state-of-art* on economic, environmental, social and corporate governance aspects of company performance through targeted research of the world literature and database

sources available (SCOPUS, ERIH, EBSCO, etc.) with using available ICTs tools.

2. *A detailed analysis of the implementation of ESG reporting in chosen economic activities and its justification* (yes or no). In case it is, analysing the way of its performance, its role, its informative capability and decisive value, all this to be done in agreement with the company information system and overall company performance. If not, focus on identifying the reasons why, possible motivation for future steps to implement it.
3. *Examine, analyze and categorize contemporary characteristics of the individual pillars: economic, environmental, social and corporate governance* (or the attractive sustainability of success) in relation to the measure of progress or dynamics of development of the overall company performance, so that the basic data and preparation for the construction and defining of multifactor methods in a rational and useful manner identify the system of conditions as the support to subsequent creation of an applicable methodology. The research will focus on the critical partial processes in the fields: *Integration of economic performance; Integration of environmental performance; Integration of social performance; Integration of corporate governance; Sustainability of success*.
4. *Specification of possibilities for company overall performance measurements* in chosen economic activities based on analyses of previous findings. (Considering possible utilization of the already acquired data, information and findings resulting from the previous scientific-research activities of the project participants. Identification of the importance and relative roles of ESG factors with using ESG data and KPIs in the company overall performance.)
5. *Construction of methods of multifactor measurement of complex company overall performance* in chosen economic activities through the advanced quantitative and qualitative methods (in detail mentioned above) while using the ICT tools and defining their practical implementation ability, functionality, modifiability and embracing a broad spectrum of factors.
6. *Application of methods for multifactor measurement of company overall performance* of chosen economic activities in practice with feedback for possible change correction aimed at further improvement.
7. *Methods assembly* while considering target 6, description of the methodology and of the software, creation of a specialist monograph and further dissemination of the project outputs (international conference) to do these publicly available.



## 7 CONCLUSIONS

The presented research has been supported by the Ministry of Environment in the project No. SP/4i2/26/07, where the *Methodology* (Hřebíček, Soukopová, Kutová, 2010) has been developed. It describes core environmental KPIs based on the Regulation (EC) No. 1221/2009, G3 Guidelines and RICOH Group Guidelines approaches. It brought a number of new visions in the area of development of core and additional environmental KPIs in the Czech Republic. It has also a potential to introduce completely new views on corporate reporting in selected economic activities and the research environmental, social and governance reporting (ESG reporting) tools.

A very important aspect of our research consists in requests on the completeness of collected data and information about KPIs, which results not only from local requirements, but also from the EC and international standards (ISO, GRI). For this reason the developed of the new *Methodology* for setting up environmental KPIs and additional economic indicators is very important for businesses practice in the Czech Republic to increase standardisation environmental reporting. It gives basis for development of KPIs for corporate ESG performance.

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