

CORPORATE PERFORMANCE INDICATORS FOR AGRICULTURE AND FOOD PROCESSING SECTOR

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Abstract

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The research project: “Construction of Methods for Multi-factorial Assessment of Company Complex Performance in Selected Sectors”, solved by author team, is introduced. Current trends of corporate performance evaluation (i.e. measurement of environmental, social, economic and governance (ESG) performance) and corporate sustainable reporting are discussed in the paper focused to agriculture and food processing sector. The relationship between environmental and sustainability indicators and corporate sustainability reporting is an important issue; and the development of advanced methods to identify key performance indicators for ESG performance is discussed here along with the possibility of the utilization of information and communication technology and XBRL taxonomy evaluating applications for the creation of business performance.

performance evaluation, ESG performance, key performance indicators, agri-environmental indicators, sustainability reporting, GRI, UN Global Compact, UNEP FI, OECD, ISO 26000, XBRL

1 INTRODUCTION

The research team of the Faculty of Business and Management (FBM) of Brno University of Technology (BUT) and the Faculty of Business and Economics (FBE) of Mendel University in Brno (MENDELU) started work on the project No. P403/11/2085 “Construction of Methods for Multi-factorial Assessment of Company Complex Performance in Selected Sectors” in January 2011. The project is funded by the Grant Agency of the Czech Republic. The main objectives of the research of this project have been specified by their six partial research targets solved in 2011–2014, described by (Hřebíček *et al.*, 2011, 2011a) and (Chvátalová, Kocmanová, Dočekalová, 2011).

The development of research in the area of corporate performance evaluation and corporate sustainability reporting in the Czech Republic was described by Hřebíček and Soukopová (2008), Hřebíček *et al.* (2009, 2011), Hřebíček, Soukopová and Kutová (2010), Chvátalová, Kocmanová

and Dočekalová (2011), Kocmanová *et al.* (2011), Kocmanová, Hornugová and Klímková (2010) and Ritschelová *et al.* (2009). These papers reflect the overall global world trends of Global Reporting Initiative (G3.1, 2011), (Bassen, Kovacs, 2008), (Schaltegger, Wagner, 2006).

Usually, environmental, economical and social corporate data and information are being monitored, codified, registered and aggregated into *Key Performance Indicators* (KPIs) (Bassen, Kovacs, 2008), (DVFA, 2008), (Garz, Schnella, Frank, 2010), (Hřebíček, Soukopová, Kutová, 2010b), (Hřebíček *et al.*, 2011a). This fact indirectly indicates that in the case of such needs the organization is able to aggregate these data and incorporate it into the corporate sustainability or environmental report, (Carroll, 1999), (Ritschelová *et al.*, 2009), (Hodinka *et al.*, 2012).

We have analyzed corporate performance and ESG factors in chosen companies of the agriculture and food processing sector which have implemented and certified integrated management system

standards¹, i.e. quality (ISO 9000), environmental (ISO 14000) and occupational health and safety (ISO 18000) management systems.

The corporate performance in these specific economic activities would thus be defined by the integrated achievement of ESG performance measures. The sustainability performance is, however, often understood as performance in environmental, social and economic/financial terms, thus excluding governance performance (Schaltegger, Wagner, 2006). However, we will consider also the corporate governance like (Bhojraj, Sengupta, 2003), (Kocmanová *et al.*, 2011).

In the paper we summarize last results of project No. P403/11/2085 of the analysis of ESG aspects of corporate performance evaluation, indicators and reporting issued by the Global Reporting Initiative (GRI) which provides Sector Supplement for all reporting organizations in the food processing sector (Food Processing, 2012) and agri-environmental policy measures and indicators which have been implemented in the European Union (EU).

Our analyses of possibilities of corporate performance measurements in chosen organizations of the agriculture and food processing sector by means KPIs were based on analyses of previous findings (Hřebíček *et al.*, 2011, 2011a), (Chvátalová, Kocmanová, Dočekalová, 2011), (Kocmanová, Hornugová, Klímková, 2010) and their results will be discussed also in the paper.

2 New approach of corporate reporting

In this chapter we introduce conclusions of our analysis of the state-of-the-art of economic, environmental, social and governance aspects of corporate performance of the agriculture and food processing sector, where we focused on the new approach of GRI reporting developed with other organizations on common approaches to corporate performance and reporting (Hřebíček *et al.*, 2011a), (Hodinka *et al.*, 2012).

We considered and analysed the EU legislation, i.e. Common Agriculture Politics (CAP)) including the reporting needs of other EU policies that relate to *Agri-Environment Indicators* (AEI(s))² and require the collection of related data.

The development of AEIs is a long-term project for monitoring the integration of environmental concerns into the CAP, proposed by the European Commission (EC) on 15 September 2006 in COM (2006) 508 final “Development of agri-environmental indicators for monitoring the integration of environmental concerns into the common agricultural policy”. The European Commission adopted 28 AEIs to assess the interaction between

the CAP and the environment. We took into account also the Communication COM (2000) 20 final “Indicators for the integration of environmental concerns into the common agricultural policy”. In these Communications, the indicators are identified according to the DPSIR³ (Driving forces – Pressures and benefits – State/Impact – Responses) analytical framework and cover the following four categories:

1. Farm management practices.
2. Agricultural production systems.
3. Pressures and risks to the environment.
4. The state of natural resources.

2.1 Current trends in corporate performance evaluation and reporting

The *Global Reporting Initiative* (GRI) is a very important network-based organization that produces a comprehensive sustainability reporting framework that is widely used around the world. The GRI has pioneered the development of the world's most widely used sustainability reporting framework in 2000 and is committed to its continuous improvement and application worldwide. The GRI drives sustainability reporting by all organizations. It produces the world's most comprehensive *Sustainability Reporting Framework* (Sustainability Reporting Framework, 2012) which is the family of reporting guidance materials provided by GRI.

Corporate sustainability reports based on the GRI Framework can be used to demonstrate an organizational commitment to sustainable development, to compare organizational performance over time, and to measure organizational performance with respect to laws, norms, standards and voluntary initiatives.

GRI's Framework consists of the *Sustainability Reporting Guidelines*, Sector Guidances, National Annexes, and the Boundary and Technical Protocols (G3 Guidelines, 2006). The GRI promotes a standardized approach to reporting to stimulate demand for information on sustainability – benefitting both reporting organizations and report users.

In March 2011, the GRI released the G3.1 Guidelines (G3.1 Guidelines, 2011), an update and completion of the G3 Guidelines from 2006, which consist of two parts.

Part 1 features guidance on how to report. Part 2 features guidance on what should be reported, in the form of *Disclosures on Management Approach* (DMA) and *Performance Indicators* (PI), which are organized into categories: *Economic*, *Environmental* and *Social*. The Social category is broken down further by Labour, Human Rights, Society and Product Responsibility subcategories. Each category

1 http://www.isoehelpline.com/ims_iso_9000_iso_14000_ohsas_18000_document_manual.htm

2 http://ec.europa.eu/agriculture/envir/indicators/index_en.htm

3 <http://issar.cenia.cz/issar/page.php?id=1504>

includes a DMA and a corresponding set of *Core* and *Additional Performance Indicators*.

Core Performance Indicators (CPI) have been developed through GRI's multi-stakeholder processes, which are intended to identify generally applicable PIs and are assumed to be material for most organizations. An organization should report on CPIs unless they are deemed not material on the basis of the GRI Reporting Principles. Further we will take into account that CPIs can be in compliance with KPIs.

Additional Performance Indicators (API) represent emerging practice or address topics that may be material for some organizations, but are not material for others. Further we will not take into account APIs and try to identify only CPIs respectively KPIs.

The DMA should provide a brief overview of the organization's management approach to the *Aspects* defined under each *Indicator Category* in order to set the context for performance information. The organization can structure its DMA to cover the full range of Aspects under a given Category or group its responses on the Aspects differently. However, the DMA should address all of the Aspects associated with each category regardless of the format or grouping.

GRI PIs are first organized by a general sustainability *Category* (economic, environmental, social: labour; human rights; society; product responsibility), and then they are further arranged under *Aspect* headings which more specifically reflect the issue each indicator is designed to measure.

Although the G3.1 Guidelines has served as an essential and very useful tools in improving the standardization of organization's reporting in many sectors, organizations continue to have differing degrees of compliance with the G3.1 Guidelines and sometimes also differing views on the best tools to apply these standards to their reporting.

The integration of financial performance within environmental, social and governance performance reflects a growing desire by stakeholders for more information on a broader range of issues. To be comparable across all organizations, and thus useful for mainstream investment analyses, it is important that financial, environmental, social and governance (ESG) data are transformed into consistent units and presented in a balanced and coherent manner in *KPIs indicators* (Garz, Schnella, Frank, 2010).

G4 Guidelines is coming GRI's fourth generation of Sustainability Reporting Guidelines and is now in development⁴. The main focus of G4 Guidelines is (G4 Development, 2012):

1. a general revision to improve DMA and PIs technical definitions;

2. an extra effort to harmonize with other relevant international reporting guidance;
3. an improvement of considerably guidance around the definition of what is material (from different perspectives);
4. a re-design of the G4 Guidelines format (by separating "standard like" requests from guidance, making it web based, offering templates, linking it to technology solutions with using XBRL taxonomy).

The launch of the fourth generation of G4 Guidelines is planned for 2013. They will be developed using the international multi-stakeholder consultation process. Open Public Comment Periods, diverse expert Working Groups and GRI's approval procedures will ensure that G4's guidance will be in consensus based and reflects the broadest possible stakeholder input.

2.2 Guidelines for Agriculture and Food Processing Sector

The *Food Processing Sector Supplement (FPSS)* (Food Processing, 2012) provides organizations in this sector with a tailored version of GRI's Reporting Guidelines. It includes the original Guidelines (GRI G3 Guidelines, 2006), (GRI 3.1 Guidelines, 2011), which set out the Reporting Principles, DMA and PIs for economic, environmental and social issues.

The FPSS is intended for all companies in the Food Processing sector. This includes all companies that are engaged in processing food, as well as food commodity trading related to food processing and fish processing, and beverage companies. Companies that produce alcohol, tobacco and timber, food retailers and companies that deliver inputs like pesticides and fertilizers to farmers may be able to use parts of the Supplement content but the document was not specifically designed for their use. The sector reporting guidance focuses on companies in codes 10 and 11.07 (non alcoholic beverages) of the NACE coding (NACE, 2011), excluding 10.9 (feed industry).

The FPSS guidance and the indicators included are not aimed at businesses whose principle occupation are agriculture sector, which does, however, have many impacts on a large range of food processing sustainability issues and are relevant for all links in the food production chain. In this regard, the FPSS does include activities by the food industry designed to make food production chains (including agriculture) more sustainable with respect to environmental, social and economic aspects. However, we added to our proposal of Agriculture and Food processing sector KPIs focuses on companies in codes 01 (Agriculture) of NACE coding, excluding 01.7 (hunting, trapping and related service activities).

4 <https://www.globalreporting.org/reporting/latest-guidelines/g4-developments/Pages/default.aspx>

How will we construct KPIs for the Agriculture sector? Firstly, we took into account EU and UN policies (Bečvářová, 2011). There are a range of Agri-Environment related policies operating within the EU. These policies collect data that may complement the needs of the *Agri-Environmental Indicators*, or conversely may benefit from data collection strategies developed to meet the needs of the AEIs. Policies that are covered by the task are:

1. United Nations Framework Convention on Climate Change (UNFCCC) – Land-use, Land-use Change and Forestry (LULUCF) (UNFCCC sector);
2. Rural Development Policy (RDP);
3. Water Framework Directive (WFD);
4. Nitrates Directive (ND);
5. National Emissions Ceiling Directive (NECD);
6. Framework Directive on the Sustainable Use of Pesticides (FDSUP);
7. Birds & Habitat Directive (BHD);
8. EU Strategy for Sustainable Development (EU SDS).

The needs of each policy were first reviewed with respect to the data and reporting requirements. This was done through extensive literature review in the first year of solving project and consultation with experts within the project team and the wider steering group. The availability and quality of the data collected to date for each policy at a national level were then investigated, and case studies for the Czech Republic for which more detailed information is processing.

Alternative data sources to those that were routinely used to meet the needs of the policy were considered, as was the sustainability of data delivery and any developments and progress in data collection described by Selenius, Baudouin and Kremer (2011) in the list of 32 AEIs confirmed by the EC. Finally, the potential synergies between the data requirements of the policies and those of the AEIs were identified and summarised⁵.

The agriculture and food processing sector's products are also enduring, in some instances lasting hundreds of years and forever changing the landscape in which they sit. These reasons, combined with the growing appetite for sustainability information from stakeholders and an increasing number of companies managing and reporting on their performance, have given rise to the need for reporting.

2.3 ISO and corporate performance indicators and reporting

The *International Organization for Standardization (ISO)*⁶, the world's largest developer of voluntary International Standards, and the GRI, signed

a *Memorandum of Understanding (MoU)* on 5 September 2011 to increase their cooperation. The *MoU* is intended to leverage the activities of the two organizations related to reporting and benchmarking by businesses and on sustainable development by sharing information on ISO standards and GRI programs, teaming up with other partners, participating in the development of new or revised documents, joint promotion and communication. ISO and GRI are also meant to support and promote each other's involvement in initiatives related to sustainable development, such as the Rio+20 conference in Brazil in 2012, and other programmes by organizations such as the *United Nations Global Compact* (UN Global Compact, 2010), the *Organization for Economic Co-operation and Development (OECD)* (OECD Guidelines, 2010), and the *United Nations Environment Programme Finance Initiative (UNEP FI)*, (UNEP FI, 2010).

The standard ISO 14031:1999 *Environmental management – Environmental Performance Evaluation – Guidelines* gives the guidance on the design and use of environmental performance evaluation, and on identification and selection of environmental performance indicators, for use by all organizations, regardless of type, size, location and complexity.

The standard ISO 14063:2006 *Environmental management – Environmental communication – Guidelines and examples* gives the guidance on an organization on general principles, policy, strategy and activities relating to both internal and external environmental communication and reporting. It utilizes proven and well-established approaches for communication, adapted to the specific conditions that exist in environmental communication.

The standard ISO 26000:2010 *Guidance Standard on Social Responsibility* emphasizes the value of public reporting on social responsibility performance for internal and external stakeholders, such as employees, local communities, investors and regulators. The ISO 26000 provides guidance on the underlying principles of social responsibility, the core subjects and issues pertaining to social responsibility and on ways to integrate socially responsible behaviour into existing organizational strategies, systems, practices and processes. ISO 26000 also emphasizes the importance of results and improvements in social performance. This represents an important new level of international attention with respect to the issue of reporting with environmental and sustainability indicators, and is aligned with GRI's vision that disclosure on ESG performance and KPIs becomes as common place and comparable as financial reporting (GRI and ISO 26000, 2011).

⁵ http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Agri-environmental_statistics

⁶ <http://www.iso.org/iso/home.html>

2.4 Integrated reporting and environmental and sustainability indicators

Integrated Reporting is a new approach to corporate reporting that demonstrates the linkages between an organization's strategy, governance and financial performance and the social, environmental and economic context within which it operates. By reinforcing these connections, Integrated Reporting can help business to take more sustainable decisions and enable investors and other stakeholders to understand how an organization is really performing.

The *International Integrated Reporting Council* (IIRC, 2012) was established to support the evolution of integrated reporting. The IIRC brings together the world's leaders from the corporate, investment, accounting, securities, regulatory, academic and standard-setting sectors, as well as civil society. The IIRC aims to develop a new approach to reporting – one that is fit for purpose in the 21st Century – building on the foundations of financial, narrative, governance and sustainability reporting, but in a way that reflects the reality that all these elements are closely related and interdependent, and flow from the organization's overall strategy and business model. In September 2011 the IIRC published its discussion paper *Towards Integrated Reporting – Communicating Value in the 21st Century*, (Towards Integrated Reporting, 2011), which offers initial proposals for the development of an *International Integrated Reporting Framework* and outlines the next steps towards its creation and adoption.

GRI is one of the co-conveners of the IIRC and is actively participating in its working groups and task forces. GRI works towards making disclosure of sustainability impacts a mainstream business activity. There are different paths to mainstreaming, and many uses for corporate sustainability reporting: as a standalone discipline; as part of a company's research and development; as a platform for providing data to specific stakeholder groups, like investors; and now, as an intrinsic element of integrated reporting.

GRI supports the development of integrated reporting as it has the potential to make a large contribution to the mainstreaming disclosure of sustainability impacts.

2.5 Conclusion

According to recent research, 95 percent of the world's 250 biggest companies now report their sustainability performance. GRI produces a comprehensive sustainability reporting framework that is widely used around the world. The Framework, which includes the Sustainability Reporting Guidelines, features PIs that organizations can use to measure and report their sustainability performance. FPSS enables to implement GRI Framework also in food processing sector and AEIs can enlarge FPSS environmental performance indicators into agriculture sector.

In the past decade, corporate performance reporting has evolved to include sustainability information, on the economic, social and environmental performance of an organization. Around the world, more companies are releasing sustainability performance information, both through annual sustainability reports or an equivalent document, and – because of the increasing demand for it – also through other means, such as websites, newsletters and other corporate reports. Increasingly, companies are integrating sustainability disclosures into their regular reporting cycle. Today, some 4,500 organizations report their sustainability performance.

GRI has launched a new XBRL taxonomy for tagging sustainability data in reports, making it easier for report users – including regulators, investors and analysts – to find and analyze data. The GRI Taxonomy – which is available for free – was developed in collaboration with Deloitte Netherlands. A team of experts from different stakeholder communities reviewed the draft taxonomy before the Public Comment Period.

GRI taxonomy will enable companies and other organizations to use XBRL (XBRL, 2012) to improve their sustainability reporting and make the data in their reports more accessible (Isenmann, Gomez, 2009).

Nelmara Arbex, Deputy Chief Executive of the GRI, said: *Today's new taxonomy is a major step forward in making sustainability data available to society. Many companies already use XBRL to tag their financial performance data; the GRI Taxonomy means that companies can tag their sustainability data, making it easily accessible for people who want to find information in the report.*

We are going to develop ICT tools in the project No. P403/11/2085 for corporate performance indicators evaluation for Agriculture and Food Processing sectors and use these in corporate sustainability reporting (Hodinka *et al.*, 2012). In this case, we would deal with creation of an application supported by XBRL format used for a data input. The input data would possess the form of a company report considering the subject area. The application would evaluate a company efficiency.

3 Corporate performance indicators development

The creation of reliable methods of corporate performance measurement at agriculture and food processing sector 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 a healthy competition environment etc.

The GRI Framework, EU, OECD and UNEP FI (UNEP FI, 2010) states that corporate performance indicators may be both quantitative and qualitative and that they should cover the reporting entity's direct and indirect impacts across economic, environmental and social dimensions.

Economic indicators include proxies for the organization's impact on resources at the shareholder level and on other economic systems at the local, national and global level. This heading also encompasses issues dealing with remuneration paid to employees and money received from customers, to name but a few.

Environmental indicators deal with the measurement of an organization's impact on the environment via its products and services and its activities.

Social indicators deal with labour practices, human rights and broader social issues affecting a broad range of stakeholders.

Governance indicators deal with corporate governance is a term that refers broadly to the rules, processes, or laws by which businesses are operated, regulated, and controlled. The term can refer to internal governance indicators/factors defined by the officers, stockholders or constitution of a corporation, as well as to external forces such as consumer groups, clients, and government regulations.

One of the possible approaches is to also take into account successful solutions to economic, environmental and social issues and governance in relation to measurement of corporate performance, as well as its continued success (Kocmanová, Němeček, 2009). Disregarding such aspects of performance in the unified reporting (e.g. prepared G4 Guidelines for Corporate Sustainability Reporting) by company managers may result in creating further and even deeper problems. For the purpose of collecting corporate performance data it is necessary to determine the KPIs of the given organization of investigated sector. We are going to select the optimal set of KPIs in relation to NACE economic activities (NACE, 2011): *A – Agriculture, forestry and fishing section* where we considered only subsections *01 – Crop and animal production, hunting and related service activities* excluding *01.07* (hunting, trapping and related service activities) and *C – Manufacturing section* where we considered only subsections *10 – Manufacture of food products* excluding *10.9* (feed industry) and *11 – Manufacture of beverages*. Further we consider the mandatory financial reporting of organizations in the Czech Republic.

3.1 Integration of economic performance and its indicators in investigated sectors

The economic dimension of sustainability concerns the organization's impacts on the economic conditions of its stakeholders and on economic systems at local, national, and global levels. The economic indicators illustrate flow of capital among different stakeholders; and main economic impacts of the organization throughout society. Economical performance indicators are often used for selection strategies (maximizing profits, maximizing total costs, company survival, etc.) based on direct economic impacts of customers,

suppliers, employees, providers of capital, public etc.

Financial performance is fundamental to understanding an organization and its own sustainability. However, this information is normally already reported in financial accounts. What is often reported less, and is frequently desired by users of sustainability reports, is the organization's contribution to the sustainability of a larger economic system.

We took into account GRI's Reporting Guidelines FPSS and choose following economic KPIs also connected with Agriculture (Kocmanová, Dočekalová, 2012):

1. EC1 – Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.
2. EC4 – Significant financial assistance received from government.

We have used our developed ICT tools based on the abovementioned XBRL taxonomy to facilitate the calculations and the visualizations of above mentioned chosen economical performance indicators (Hodinka *et al.*, 2012).

3.2 Integration of environmental performance and its indicators in investigated sectors

The environmental dimension of sustainability concerns an organization's impacts on living and non-living natural systems, including ecosystems, land, air, and water. Environmental indicators cover performance related to inputs (e.g., material, energy, water) and outputs (e.g., emissions, effluents, waste). In addition, they cover performance related to biodiversity, environmental compliance, and other relevant information such as environmental expenditure and the impacts of products and services. We have determined KPIs for environmental reporting using results of our previous research in this field (Hřebíček, Soukopová, Kutová, 2010), (Soukopová, Bakoš, 2010), (Soukopová, Struk, 2011) using the G3.1 Guideline and EMAS indicators (EMAS III, 2009), which were accepted by the Ministry of Environment of the Czech Republic as its official methodology for environmental reporting. The proposed KPIs shall apply to all organizations in all economic activity sectors including agriculture and food processing sectors:

1. *Efficiency of material consumption*, where are used EN1 and EN2 indicators from GRI's Reporting Guidelines;
2. *Energy efficiency*, where are used EN3, EN4 indicators from GRI's Reporting Guidelines;
3. *Water management*, where is used EN8 indicator from GRI's Reporting Guidelines;
4. *Waste management*, where we used EN22 indicator from GRI's Reporting Guidelines;

5. *Biodiversity*, where are used EN12 and EN13 indicators from GRI's Reporting Guidelines;
6. *Air pollution*, where are used EN16, EN17, EN19, EN20, EN21, EN23 indicators from GRI's Reporting Guidelines;

Following suggestions of Eurostat for agriculture sector, a distinction was made between two sets of AEIs; here termed the first and second set of AEIs (Selenius, Baudouin, Kremer, 2011). This distinction was based on the fact that the first set of AEIs are considered to be mature (i.e. well developed) and indeed key in describing agriculture-environment interactions, but also because the data needed for the establishment of these indicators have to be derived primarily from the farm or at farm level. In contrast, the second set of AEIs are not all yet fully defined and developed, and the data required are derived, in general, from sources other than at farm level. The two sets of AEIs are listed below in the Table I, where the first set of AEIs is grey.

From where can data be obtained to calculate AEIs? There are following three surveys of EU serve as existing data sources for several of the 32 AEIs:

- *Farm Structure Survey (FSS)*^{7,8}. The FSS provides comparable statistical data on the structures of farms and horticultural enterprises in all member states. The statistics contain data on the number of farms, production sector, form of ownership, land use, crop production, livestock production, farmers and other labour force on farms, working hours spent on agricultural work, working outside the farm, secondary business activities on farms, organic production, machinery and equipment on farms, manure pits, and irrigated areas.
- *Survey on Agricultural Production Methods (SAPM)*. SAPM is a one-off supplement to FSS focusing on production methods and management, and includes questions on the following topics; tillage methods, soil conservation, actions against erosion and nutrient leaching, landscape features, animal grazing, animal housing, nutrients, manure storage and treatment facilities, plant protection, and irrigation.
- *Farm Accountancy Data Network (FADN)*^{9,10}. The FADN is an instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy. The concept of the FADN was launched in 1965, when Council Regulation 79/65 established the legal basis for the organisation of the network. It consists of an annual survey carried out by the Member States of the EU accountancy data from a sample of the agricultural holdings in the EU every year. Derived from national surveys, the FADN is the only source of microeconomic data that is harmonised,

i.e. the bookkeeping principles are the same in all countries. Holdings are selected to take part in the survey on the basis of sampling plans established at the level of each region in the EU. The survey does not cover all the agricultural holdings in the EU but only those which due to their size could be considered commercial.

We are going to develop XBRL tools to facilitate the calculations and the visualizations of these integrated environmental performance indicators (Hodinka *et al.*, 2012).

3.3 Integration of social performance and its indicators in investigated sectors

The social dimension of sustainability concerns the impacts for company that has on the social systems within which it operates. We are going to determine KPIs for social performance based on the GRI social performance indicators to identify key performance aspects surrounding labor practices, human rights, society, and product responsibility (Hřebíček, Soukopová, Štencl, Trenz, 2011), (G3.1 Guidelines, 2011), (GRI Reporting Framework, 2006) and in the following key areas:

1. *Labor Practices and Decent Work indicators* are broadly based on the concept of decent work. The set begins with disclosures on the scope and diversity of the reporting organization's workforce, emphasizing aspects of gender and age distribution. We here take into account following KPIs:
 - *Employment* – LA1 and LA3 indicators from FPSS;
 - *Labour/management relations* – LA4, LA5 and FP3 (Percentage of working time lost due to industrial disputes, strikes and/or lock-outs, by country) indicators from FPSS;
 - *Occupational Health and Safety* – LA7, LA8 indicators from FPSS;
 - *Training and Education* – LA10 indicator from FPSS;
 - *Diversity and Equal Opportunity* – LA13 and LA14 indicators from FPSS;
2. *Human Rights indicators* require companies to report on the extent to which human rights are considered in investment and supplier/contractor selection practices. We here take into account:
 - *Investment and procurement practices* – HR1 and HR2 indicators from FPSS;
 - *Non-discrimination* – HR4 indicator from FPSS;
 - *Freedom of association and collective bargaining* – HR5 indicator from FPSS;
 - *Child labour* – HR6 indicator from FPSS;
 - *Forced and compulsory labour* – HR7 indicator from FPSS;

7 http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Farm_structure

8 http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-08-086/EN/KS-SF-08-086-EN.PDF

9 <http://ec.europa.eu/agriculture/rica/>

10 <http://www.vsbox.cz/fadn/>

I: List of the 32 Agri-Environmental Indicators connected with DPSIR Framework (Selenius, Baudouin, Kremer, 2011)

Domain	Sub-domain	AEI No.	Title
Responses	Public policy	AEI1	Agri-environmental commitments
		AEI2	Agricultural areas under Natura 2000
	Technology and skills	AEI3	Farmers' training level and use of environmental farm advisory services
	Market signals and attitudes	AEI4	Area under organic farming
Driving forces	Input use	AEI5	Mineral fertiliser consumption
		AEI6	Consumption of pesticides
		AEI7	Irrigation
		AEI8	Energy use
	Land use	AEI9	Land use change
		AEI10.1	Cropping patterns
		AEI10.2	Livestock patterns
	Farm management	AEI11.1	Soil cover
		AEI11.2	Tillage practices
		AEI11.3	Manure storage
	Trends	AEI12	Intensification/extensification
		AEI13	Specialisation
		AEI14	Risk of land abandonment
Pressures and benefits	Pollution	AEI15	Gross nitrogen balance
		AEI16	Risk of pollution by phosphorus
		AEI17	Pesticide risk
		AEI18	Ammonia emissions
		AEI19	Greenhouse gas emissions
	Resource depletion	AEI20	Water abstraction
		AEI21	Soil erosion
		AEI22	Genetic diversity
	Benefits	AEI23	High Nature Value farmland
		AEI24	Renewable energy production
State/Impact	Biodiversity and habitats	AEI25	Population trends of farmland birds
	Natural resources	AEI26	Soil quality
		AEI27.1	Water quality – Nitrate pollution
		AEI27.2	Water quality – Pesticide pollution
	Landscape	AEI28	Landscape – state and diversity

3. *Society indicators* focus the attention on the impacts organizations have on the communities in which they operate, and disclosing how the risks that may arise from interactions with other social institutions are managed and mediated. In particular, information on the risks associated with bribery and corruption is sought, as well as information on the undue influence in public policy-making, and monopoly practices. We here take into account:

- *Local community* – SO1 and FP4 (Nature, scope and effectiveness of any programs and practices (in-kind contributions, volunteer initiatives, knowledge transfer, partnerships and product development) that promote healthy lifestyles; the prevention of chronic disease; access to healthy, nutritious and affordable food; and improved

welfare for communities in need) indicators from FPSS;

- *Corruption* – SO2, SO3 and SO4 indicators from FPSS;

- *Public policy* – SO5 and SO6 indicators from FPSS.

4. *Product responsibility indicators* address the aspects of a reporting organization's products and services that directly affect customers. We take into account namely:

- *Customer Health and Safety* – PR1, FP5 (Percentage of production volume manufactured in sites certified by an independent third party according to internationally recognized food safety management system standards), FP6 (Percentage of total sales volume of consumer products, by product category, that are lowered in saturated fat,

trans fats, sodium and sugars) and FP7 (Percentage of total sales volume of consumer products, by product category sold, that contain increased fiber, vitamins, minerals, phytochemicals or functional food additives) indicators from FPSS;

- *Products and Services Labelling* – PR3, and FP8 (Policies and practices on communication to consumers about ingredients and nutritional information beyond legal requirements) indicators from FPSS.

The integration process of the development of the complete set of social performance indicators is in progress and the final version of KPIs is planned to be complete, as a part of our research project, towards the end of this year.

3.3 Integration of corporate governance performance and its indicators in investigated sectors

We have analyzed the corporate governance performance of an organization Agriculture and Food Processing sector vis-à-vis clear and transparent management principles: efforts for clarification and transparency; level of clarification of stakeholders; transparency of stakeholders.

We are going to propose corporate governance indicators that cover the exercise of leadership: direct participation by CEO; communication with employees; communication from employees.

We also consider further corporate governance indicators that could cover, as far as management systems are concerned:

- *Functional powers of board of directors and board of auditors (or auditors)* in: participation in real discussion; integration of external perspectives; opinions of auditors/board of auditors; support given to auditors.

- *Appointment and assessment of CEO in:* appointment; assessment and removal; decisions on remuneration.

Within the context of the organization's management as an effective decision-making authority for global organizations, we have developed an approach to reviewing the corporate governance effectiveness that we have structured this around three areas of risk and underperformance.

4 CONCLUSIONS

The presented paper has introduced chosen results of the project No. P403/11/2085 *Construction of Methods for Multifactorial Assessment of Company Complex Performance in Selected Sectors* funded by the Grant Agency of the Czech Republic.

There were presented the results of the analysis of the state-of-art on economic, environmental, social and corporate governance indicators at Agriculture and Food Processing Sector and their integration to integrated reporting.

SUMMARY

The content of the paper are a summary of the results that have been reached so far in the Czech Science Foundation Project No. P403/11/2085 *Construction of Methods for Multifactor Assessment of Company Complex Performance in Selected Sectors* – in the area of research of corporate performance. The situation of companies is assessed at the level of establishing key performance indicators (KPIs), in accordance with environmental, social and governance performance, in the agricultural and food processing sectors, and this in the case of companies which have registered the ISO 9000, ISO 14000 and ISO 18000 certificates. The economical performance has been measured on the basis of reaching the ESG indicators of environmentally sustainable development and the sustainable development in social, economical and corporate governance. The analysis which has been carried out and the possibilities of measuring a company's efficiency are directly tied with the previous work of the author's. New approaches in company reporting connected with the Global Reporting Initiative (GRI) and in union with the sustainable development in organizations have also been discussed. The analysis was in accord with the valid legislation, norms and standards in the given area. The subsequent development has also been discussed with the newly prepared documents (standards) in view. The new form of company reporting shows the close links between organizations and even their own structure, while it influences the company's strategy, its administration, its financial efficiency, and this in the social and ecological contexts. The new GRI introduces an XBRL taxonomy for supporting the accessibility of the contents using a suitable labelling of the distributed data for concrete subjects (individuals, companies). This, as well as the creation of software applications oriented towards company performance assessment together with using XBRL, will be the next subject matter of the project that is currently being worked on.

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REFERENCES

- BASSEN, A., KOVACS, A. M., 2008: Environmental, Social and Governance Key Performance Indicators from a Capital Market Perspective, *Zeitschrift für Wirtschafts und Unternehmensethik*, 9, 2: 182–192, ISSN 1439-880X.
- BEČVÁŘOVÁ, V., 2011: The European Model of Agricultural Policy in the Global Context. In: *New Knowledge in a New Era of Globalization*, Edited by Piotr Pachura. *economia*. Rijeka, Croatia: InTech Open, 2011. pp. 285–310. ISBN 978-953-307-501-3.
- BHOJRAJ, S., SENGUPTA P., 2003: The Effect of Corporate Governance Mechanisms on Bond Ratings and Yields: The Role of Institutional Investors and Outside Directors, *Journal of Business*, 76, 3: 455–475, ISSN 00219398.
- CARROLL, A. B., 1999: Corporate Social Responsibility: Evolution of a Definitional Construct, *BUSINESS & SOCIETY*, 38, 3: 268–295, ISSN 0007-6503.
- Communication on Progress, 2010: [online] [cit. 2012-24-3] Available: http://www.unglobalcompact.org/COP/communicating_progress.html.
- DVFA, 2008: KPIs for ESG. Key Performance Indicators for Environmental, Social and Governance Issues. A Guideline for Corporates on How to Report on ESG and a Benchmark for Investment Professionals on How to Integrate ESG into Financial Analysis, *DVFA Financial Papers* No. 8/08_e, DVFA, Dreieich.
- EMAS III, 2009: Regulation (EC) No. 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No. 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC. [online] [cit. 2012-24-3] Available: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:342:0001:0045:en:pdf>.
- Food Processing, 2012: [online] [cit. 2012-24-3] Available: <https://www.globalreporting.org/reporting/sector-guidance/food-processing/Pages/default.aspx>.
- GARZ, H., SCHNELLA, F., FRANK, R., 2010: KPIs for ESG. A Guideline for the Integration of ESG into Financial Analysis and Corporate Validation. Version 3.0, Frankfurt, DVFA/EFFAS, [online] [cit. 2012-24-3] Available: http://www.dvfa.de/files/die_dvfa_kommissionen/non_financials/application/pdf/KPIs_ESG_FINAL.pdf.
- GRI Reporting Framework, 2006: [online] [cit. 2012-24-3] Available: <http://www.globalreporting.org/ReportingFramework/ReportingFrameworkOverview/>.
- GRI and ISO 26000, 2011: GRI and ISO 26000: How to use the GRI Guidelines in conjunction with ISO 26000. [online] [cit. 2012-24-3] Available: http://www.globalreporting.org/NR/rdonlyres/4A15F3C6-13D1-4AB4-9D5D-C93C38E56A3D/5468/ISOGRIRReport_FINAL.pdf.
- G3 Guidelines, 2006: G3 Guidelines. [online] [cit. 2012-24-3] Available: <https://www.global-reporting.org/reporting/latest-guidelines/g3-guidelines/Pages/default.aspx>.
- G3.1 Guidelines, 2011: G3.1 Guidelines, [online] [cit. 2012-24-3] Available: <http://www.globalreporting.org/ReportingFramework/G31Guidelines/>.
- G4 Development, 2012: [online] [cit. 2012-24-3] Available: <https://www.globalreporting.org/resource/library/G4-PCP1-Full-Report.pdf>.
- HODINKA, M., ŠTENCL, M., HŘEBÍČEK, J., TRENZ, O., 2012: Current trends of corporate performance reporting tools and methodology design of multifactor measurement of company overall performance. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 2012, LX, No. 2, pp. 85–90, ISSN 1211-8516.
- HŘEBÍČEK, J., SOUKOPOVÁ, J., 2008: *Voluntary Company Assessment Report on the linkages between environment, economy and society* (in Czech). Praha: Ministry of Environment of the Czech Republic, 61. ISBN 978-80-7212-495-4.
- HŘEBÍČEK, J., HÁJEK, M., CHVÁTALOVÁ, Z., RITSCHLOVÁ, I., 2009: Current Trends in Sustainability Reporting in the Czech Republic. In: *EnviroInfo 2009. Environmental Informatics and Industrial Environmental Protection: Concepts, Methods and Tools*. 23. International Conference on Informatics for Environmental Protection, Aachen: Shaker Verlag, 233–240, ISBN 978-80-7044-883-0.
- HŘEBÍČEK, J., SOUKOPOVÁ, J., KUTOVÁ, E., 2010: *Methodology Guideline. Proposal of Indicators for Environmental Reporting and Annual Reports of EMAS*. (in Czech), Praha: Ministry of Environment of the Czech Republic, 26.
- HŘEBÍČEK, J., SOUKOPOVÁ, J., ŠTENCL, M., TRENZ, O., 2011: Corporate Key Performance Indicators for Environmental Management and Reporting. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis* 59, 2: 99–108, ISSN 1211-8516.
- HŘEBÍČEK, J., SOUKOPOVÁ, J., ŠTENCL, M., TRENZ, O., 2011a: Integration of Economic, Environmental, Social and Corporate Governance Performance and Reporting in Enterprises. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis* 59, 7: 157–177, ISSN 1211-8516.
- CHVÁTALOVÁ, Z., KOCMANOVÁ, A., DOČEKALOVÁ, M., 2011: Corporate Sustainability Reporting and Measuring Corporate Performance, In: *Environmental Software Systems. Frameworks of eEnvironment*. 9th IFIP WG 5.11 International Symposium. ISESS 2011. Heidelberg: Springer, 398–406, ISBN 978-3-642-22284-9.
- IIRC, 2012: The International Integrated Reporting Council website. [online] [cit. 2012-24-3] Available: <http://www.theiirc.org/>.

- ISENMANN, R., GOMEZ, J., 2009: Advanced corporate sustainability reporting – XBRL taxonomy for sustainability reports based on the G3-guidelines of the Global Reporting Initiative. In: Hřebíček, J. Towards eEnvironment. European Conference of the Czech Presidency of the Council of the EU 2009: Opportunities of SEIS and SISE: Integrating Environmental Knowledge in Europe; March 25–27, 2009; Prague, Czech Republic. Prague, pp. 32–48.
- KOCMANOVÁ, A., NĚMEČEK, P., 2009: Economic, Environmental and Social Issues and Corporate Governance in Relation to Measurement of Company Performance. In: Proceedings of the 9th International Conference Liberec Economic Forum 2009. Liberec: Technical University of Liberec, 177–186, [online] [cit. 2012-24-3] Available: http://seb.soc.cas.cz/publikace_download/publikace/lef2009_sbornik.pdf.
- KOCMANOVÁ, A., HORNUGOVÁ, J., KLÍMKOVÁ, M., 2010: Sustainability: The Integration Environmental, Social and Economic Performance of Company (in Czech). Brno: CERM, Akademické nakladatelství, s. r. o., ISBN 978-80-7204-744-4.
- KOCMANOVÁ, A., DOČEKALOVÁ, M., NĚMEČEK, P., ŠIMBEROVÁ, I., 2011: Sustainability: Environmental, Social and Corporate Governance Performance in Czech SMEs. In: The 15th World Multi-Conference on Systemics, Cybernetics and Informatics. 2011. IFSR, Orlando, USA: WMSCI 2011, 94–99, ISBN 978-1-936338-42-9.
- KOCMANOVÁ, A., DOČEKALOVÁ, M., 2012: Construction of the economic indicators of performance in relation to environmental, social and corporate governance (ESG) factors. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, LX, No. 3, *In print*.
- NACE, 2011: List of NACE codes. [online] [cit. 2012-24-3] Available http://ec.europa.eu/competition/mergers/cases/index/nace_all.html.
- OECD Guidelines, 2010: OECD Guidelines for Multinational Enterprises. [online] [cit. 2012-24-3] Available http://www.oecd.org/document/28/0,3746,en_2649_34889_2397532_1_1_1_1,00.html.
- PERRINI, F., TENCATI, A., 2006: Sustainability and Stakeholder Management: the Need for New Corporate Performance Evaluation and Reporting Systems. *Business Strategy and the Environment*, 15: 296–308, ISSN 1740-8008.
- Renewed EU strategy 2011-14 for CSR, 2011: [online] [cit. 2012-24-3]. Available: http://ec.europa.eu/enterprise/policies/sustainable-business/files/csr/new-csr/act_en.pdf.
- RITSCHELOVÁ, I., SIDOROV, E., HÁJEK, M., HŘEBÍČEK, J., 2009: Corporate Environmental Reporting in the Czech Republic and its Relation to Environmental Accounting at Macro Level. In: 11th Annual EMAN Conference on Sustainability and Corporate Responsibility Accounting. Measuring and Managing Business Benefits. Budapest: AULA, 55–60, ISBN 978-963-503-370-6.
- SELENIUS, J., BAUDOUIN, L., KREMER, A. M., 2011: *Data requirements, availability and gaps in Agri-environment indicators (AEIs) in Europe*. Luxembourg, Publications Office of the European Union, ISBN 978-92-79-22086-9. [online] [cit. 2012-24-3] Available: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-11-022/EN/KS-RA-11-022-EN.PDF.
- SOUKOPOVÁ, J., BAKOŠ, E., 2011: Assessing the efficiency of municipal expenditures regarding environmental protection. In: Environmental Economics and Investment Assessment III. Cyprus. Cyprus: WIT Press 2010, 2010. pp 107–119, ISBN 978-1-84564-436-9.
- SOUKOPOVÁ, J., STRUK, M., 2011: Efficiency of the current municipal waste expenditure – methodology approach and its application. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 59, 7: 379–386, ISSN 1211-8516. 2011.
- SCHALTEGGER, S., WAGNER, M., 2006: Integrative Management of Sustainability Performance, Measurement and Reporting. *International Journal of Accounting, Auditing and Performance Evaluation*, 3, 1: 1–19, ISSN 1740-8008.
- Sustainability Reporting Framework. 2012: website on Globalreporting. [online] [cit. 2012-24-3] Available: <https://www.globalreporting.org/reporting/reporting-framework-overview/Pages/default.aspx>.
- Towards Integrated Reporting, 2011: Towards Integrated Reporting - Communicating Value in the 21st Century (2011) on IIRC. [online] [cit. 2012-24-3] Available: http://theiirc.org/wp-content/uploads/2011/09/IR-Discussion-Paper-2011_spreads.pdf.
- UN Global Compact, 2010: United Nations Global Compact. [online] [cit. 2012-24-3] Available: <http://www.unglobalcompact.org/>.
- UNEP FI, 2010: United Nations Environment Programme Finance Initiative. [online] [cit. 2012-24-3] Available: <http://www.unepfi.org/about/index.html>.
- UNEP FI Report, 2011: An Investors' Perspective on Environmental Metrics for Property, Geneva: UNEP FI, [online] [cit. 2012-24-3] Available: <http://www.unepfi.org/fileadmin/documents/EnvironmentalMetrics.pdf>.
- WBCSD and UNEP FI, 2011: Translating environmental, social and governance factors into sustainable business value. Key insights for companies and investors. Report from an international workshop series of the WBCSD and UNEP FI. [online] [cit. 2012-24-3] Available: <http://www.unepfi.org/fileadmin/documents/translatingESG.pdf>.
- XBRL, 2012: An Introduction to XBRL. [online] [cit. 2012-24-3] Available: <http://www.xbrl.org/WhatIsXBRL/>.

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