

DETERMINANTS OF SUSTAINABILITY REPORTING IN FOOD AND AGRICULTURE SECTORS

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Abstract

HŘEBÍČEK JIŘÍ, FALDÍK OLDŘICH, KASEM EDWARD, TRENZ OLDŘICH. 2015. Determinants of Sustainability Reporting in Food and Agriculture Sectors. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(2): 539–552.

Since the end of the 1990s, sustainability reporting (SR) has become an increasingly relevant topic in business and academia. However, it is still limited in food and agriculture sector in the Czech Republic and the European Union and only little information of the latest developments have thus far been presented. This paper provides current information dating from 2010 to 2014 from publications related to food and agriculture sector. The objective of the paper is to identify what determinants of SR are examined in the world initiatives to identify (in) consistencies, gaps, and opportunities for our future research of this field. The paper focuses to new G4 Guidelines of the Global Reporting Initiative (GRI) and the Sustainability Assessment of Food and Agriculture (SAFA) systems of the Food and Agriculture Organization (FAO) of the United Nation. Finally, possible future research of SR including SR information systems are discussed by illuminating gaps and underexposed themes in the area of regulation and governance as well as stakeholder perception.

Keywords: sustainability, corporate sustainability reporting, integrated reporting, performance indicators, food and agriculture sector, GRI, SAFA, IIRC

INTRODUCTION

Corporate sustainability reporting has been the subject of extensive research in last decades. One widely-used the definition of corporate sustainability reports identifies them as “*public reports by companies to provide internal and external stakeholders with a picture of the corporate position and activities on economic, environmental and social dimensions*” (WBCSD, 2002). Sustainability Reporting (SR) is a voluntary organisation's activity with two general purposes (Hahn, Kühnen, 2013; Kocmanová *et al.*, 2013; Lozano, 2013): *to assess the current state of an organisation's economic, environmental and social dimensions*, and *to communicate an organisation's efforts and sustainability progress to their stakeholders*. SR can be used for assessing corporate sustainability performance over time, benchmarking against other organizations, and demonstrating how the organisation influences, and is influenced by, expectations about sustainable development (Hřebíček *et al.*, 2012).

From a historical view, the development and focus of sustainability reporting had several stages (Fifka, 2013; Hahn, Kühnen, 2013; Kolk, 2010; Lozano, 2013). In the 1970s, traditional *financial reporting* was sometimes complemented by *additional social reports*. In the 1980s, the focus shifted towards *environmental issues* such as air emissions and waste generation however it was often enlarged by *social reporting*. By the end of the 1990s, reporting research and practice increasingly began to consider the social and the environmental dimension simultaneously in a *joint report* which was often published alongside traditional financial reports. After global financial crisis in 2008, reporting research began to consider *corporate governance dimension* (Frías-Aceituno *et al.*, 2012; Hřebíček *et al.*, 2011; Lozano, Huisingh, 2011).

This trend can be directly linked to the *development of voluntary standard* setting by the *Global Reporting Initiative* (GRI) (Hahn, Kühnen, 2013; Kocmanová *et al.*, 2013) in many business sectors. Today the G4 Guidelines (G4 Guidelines, 2013a, 2013b, 2013c) are

regarded as “the *de facto* global standard” for corporate sustainability reporting (Kocmanová *et al.*, 2013; Lozano, 2013). These Guidelines are voluntary and intended to serve as a generally accepted framework for reporting on an organisation’s economic, environmental, social, and also corporate governance performance. GRI’s Sustainability Disclosure Database (GRI Database, 2014) catalogues all GRI-based reports that GRI is aware of. It also includes a growing number of integrated reports, and is a great source of practical examples. We are using this database in our research project “Measuring corporate sustainability performance in selected sectors” [Nr. 14-23079S] supported by the Czech Science Foundation.

However, in spite of the standardization efforts, significant differences remain between companies from different economic activities (NACE, 2011) with regard to the content and quality of sustainability reports (Popelka *et al.*, 2013). In addition, there are many international standards for implementing and certifying the sustainability pillars like ISO 9000, ISO 14000, ISO 18000 (ISOHelpline, 2014), ISO 26000 (ISO26000, 2014) and Eco-Management and Audit Scheme (EMAS, 2014); the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises (OECD Guidelines, 2010); the Social Accountability 8000 standard (SA, 2008); the Sustainability Assessment of Food and Agriculture systems (SAFA) (SAFA, 2013).

Some leading companies have begun to combine all their reports into a single document, the integrated report, as part of a sustainable strategy aimed at meeting the information needs of stakeholders and ensuring the effective allocation of scarce resources (Eccles and Kruz, 2010; Frías-Aceituno *et al.*, 2012; Hřebíček, Soukopová, Trenz, 2014; Kocmanová *et al.*, 2013; Schaltegger and Wagner, 2011).

The objectives of developing the GRI G4 Guidelines were to improve the technical quality of the organisation’s report content to eliminate ambiguities and differing interpretations, harmonize these guidelines with other international accepted standards, and offer guidance related to link the sustainability reporting process to the preparation of an *Integrated Report* (IIRC 2011, 2013). GRI co-founded the *International Integrated Reporting Council* (IIRC) because the future of corporate reporting is the integration of financial and sustainability strategy and results. The IIRC is developing a framework *Integrated Reporting* (IR) that combine financial, social, and environmental information to help address compartmentalisation (IIRC 2011, 2013). An integrated report should be the result of an integrated strategy and an integrated reporting process. The development of a IR framework addresses the IIRC in the cooperation with the GRI and with other international organizations as the Prince’s Accounting for Sustainability Project (A4S, 2004), the International

Federation of Accountants (IFAC, 2014), the International Accounting Standards Board (IASB, 2014), the United Nations Environment Programme Finance Initiative (UNEPFI, 2014) the United Nations Global Compact (UN Global Compact, 2014), Climate Disclosure Standards Board (CDSB, 2014), and the World Business Council for Sustainable Development (WBCSD, 2014). It is anticipated that this new reporting framework will bring greater consistency to corporate sustainability reporting and will contribute to the harmonization of integrated reporting and creating new standards (Busco *et al.*, 2013; Eccles, Krzus, 2010). Stubbs, Higgins and Milne (2013) analysed why did organizations not produce sustainability reports in Australia and concluded that new standards could change this situation.

New framework for *sustainability reporting in food and agriculture sector* was developed by the Food and Agriculture Organization (FAO) of the United Nation (FAO, 2014). Sustainable and rural development has been defined by FAO as “the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable” (FAO, 1989). Following this definition FAO developed a universal framework for the *Sustainability Assessment of Food and Agriculture systems* (SAFA, 2013), which provides a holistic and inclusive framework for assessing sustainability performance in the food and agriculture sector, including crop and livestock production, forestry and fisheries.

The objective of the paper the introduction of our research of determinants of sustainability reporting in food and agriculture sectors, where we follow the trends which brought the frameworks of GRI and SAFA reporting principles (G4 Guidelines, 2013a; Kocmanová *et al.*, 2013; Popelka *et al.*, 2013; SAFA, 2013) together with the methodology of computation of sustainability indicators for the Czech agriculture and food processing sectors (Hřebíček, Trenz, Vernerová, 2013; Hřebíček *et al.* 2013; Kocmanová *et al.*, 2013; Křen 2011; Popelka *et al.*, 2013; Valtýniová, Křen, 2011).

MATERIALS AND METHODS

In this part, we introduce our research of new GRI G4 and SAFA reporting methodologies which determined sustainability reporting in Food and Agriculture sectors (FAS).

GRI G4 Reporting Methodology for Food Processing Sector

Let us consider the Food Processing sector (FPS) of organizations with codes 10 and 11.07 (non-alcoholic beverages) of the NACE coding (NACE,

2011), excluding 10.9 (feed industry). It includes a diverse group of organizations involved in the processing of products like meat, milk, fish, crops and water. It includes as Small & Medium Enterprises (SMEs) and also some of the largest multinational companies in the world. Some companies directly participate in all areas of food production, from farming activities through to final production and retail. Others are concentrated more at the top end of the production chain or buy through commodity markets (G4 Sector Disclosures, 2014).

Preparing a sustainability report using the G4 Guidelines is an iterative process. They offer two options for an organization to prepare its sustainability report “*in accordance*” with the G4 Guidelines. These two options are *Core* and *Comprehensive* (G4 Guidelines, 2013b) and can apply for an organization of any type, size, sector or location.

The *Core option* contains the essential elements of a sustainability report. The *Core option* provides the background against which an organization communicates the impacts of its economic, environmental and social and governance performance. The *Comprehensive option* builds on the *Core option* by requiring additional Standard Disclosures of the organization's strategy and analysis, governance, and ethics and integrity.

The *Reporting Principles* (G4 Guidelines, 2013b) are fundamental to achieving transparency in sustainability reporting and therefore should be applied by organizations in FPS when preparing a sustainability report. They are divided into two groups: *Principles for Defining Report Content* guide and *Principles for Defining Report Quality* guide. The *Principles for Defining Report Content* are split into *Materiality*; *Stakeholder Inclusiveness*; *Sustainability Context* and *Completeness* parts (G4 Guidelines, 2013b, 2013c):

- a) *Materiality*. The report should cover “*Aspects*” (see G4 Guidelines (2013b, 2013c) referring to the *Aspect list* of subjects covered by these guidelines) those reflect the *organization's significant economic, environmental and social impacts* or *substantively influence the assessments and decisions of stakeholders* and, therefore, potentially merit inclusion in the report. Materiality is the threshold at which aspects become sufficiently important that they should be reported. In our case, Křen (2011) developed Aspects for agriculture sector and the G4 Sector Disclosures guideline (G4 Sector Disclosures, 2014) for FPS.
- b) *Stakeholder Inclusiveness* (SI): The organization should *identify its stakeholders*, and *explain how it has responded to their reasonable expectations and interests*. Stakeholders can include those who are invested in the organization as well as those who have other relationships to the organization.
- c) *Sustainability Context* (SC): The report should present the *organization's performance* in the wider

context of sustainability. This should show how the organization contributes, or aims to contribute in the future, to the improvement or deterioration of economic, environmental and social conditions, developments, and trends at the local, regional or global level including the limits and demands placed on environmental or social resources at FPS, and local, regional, or global level.

- d) *Completeness*: The report should include the coverage of material Aspects and their Boundaries (*Aspect Boundaries* refer the description of where impacts occur for each material Aspect), sufficient to reflect significant economic, environmental and social impacts, and to enable stakeholders to assess the organization's performance in the reporting period. In setting the *Aspect Boundaries*, an organization should consider impacts within and outside of the organization. The completeness may also be used to refer to practices in data and information collection and whether the presentation of information is reasonable and appropriate.

The guideline part *Standard Disclosures* (G4 Guidelines, 2013b) consist of *General Standard Disclosures* with reporting topics G4-I, I = 1, ..., 58 and *Specific standard disclosures* which consists of the *Disclosures on Management Approach* (DMA) with G4-DMA topic and *Indicators and Aspects* specific DMAs, which are organized into three categories: *Economic* with indicators G4-ECI, I = 1, ..., 9; *Environmental* with indicators G4-ENI, I = 1, ..., 34 and *Social category* that is further divided into four sub-categories *Labor Practices and Decent Work* with indicators G4-LAI, I = 1, ..., 16; *Human Rights* with indicators G4-HRI, I = 1, ..., 12; *Society* with indicators G4-SOI, I = 1, ..., 11 and *Product Responsibility* with indicators G4-PRI, I = 1, ..., 9.

The General Standard Disclosure introduced reporting topics: Strategy and Analysis (G4-1, G4-2); Organizational Profile (G4-9, ..., G4-16); Identified Material Aspects and Boundaries (G4-17, ..., G4-23); Stakeholder Engagement (G4-24, ..., G4-27); Report profile (G4-28, ..., G4-33); Governance (G4-34, ..., G4-55); Ethics and Integrity (G4-56, G4-57, G4-58), where *Governance Standard Disclosure* provides an overview of: *the governance structure and its composition; the role of the highest governance body in setting the organization's purpose, values, and strategy; the competencies and performance evaluation of the highest governance body; the role of the highest governance body in risk management; the role of the highest governance body in sustainability reporting; the role of the highest governance body in evaluating economic, environmental and social performance; remuneration and incentives*.

Both G4 General and Specific Standard Disclosures are described and discussed in detail (G4 Guidelines, 2013b, 2013c) and we do not introduce them, but in the next section we introduce topics, aspects and indicators for FPS.

GRI G4 Reporting Process

Now we can specify the process for defining standard G4 sustainability report content. It consists of four steps (1):

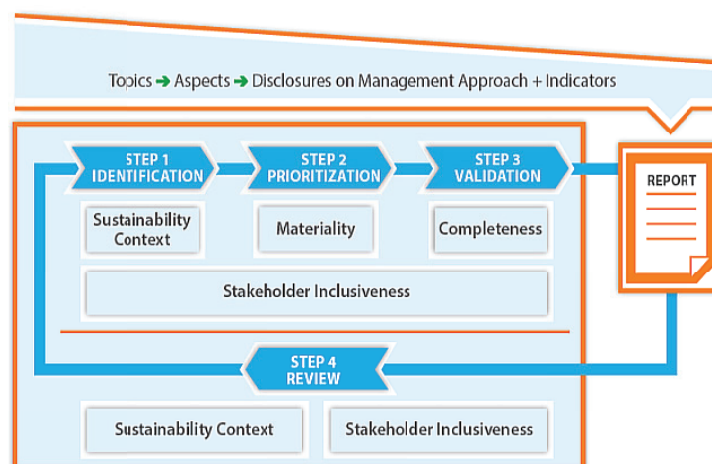
- Step 1: *Identification* of the organization's *Aspects* and any other relevant topics, and organization's *Aspect Boundaries*, which might be considered to be reported on. This identification is based on the *Principles of SC and SI*. When assessing the range of potentially relevant topics, the organization should use the tests that underlie these two Principles. The organization should identify *Aspects* and any other relevant topics based on the impacts related to all of its activities, products, services, and relationships, regardless of whether these impacts occur within or outside of the organization.
- Step 2: *Prioritization* of the *Aspects* and any other relevant topics from Step 1, to identify those that are material and therefore to be reported on. Prioritization should be based on the *Principles of Materiality and SI*. When assessing the level of priority, the organization should use the tests that underlie these two Principles.
- Step 3: *Validation* where the *Principles of Completeness and SI* are applied to finalize the identification of the report content. When validating the identified material *Aspects* (or other material topics), the organization should use the tests that underlie these two Principles.
- Step 4: *Review* takes place as the organization is preparing for the next reporting cycle. A review may focus not only on the *Aspects* that were material in the previous reporting period but also consider again the *Principles of SI and SC*. The findings inform and contribute to the Step 1 for the next reporting cycle.

We applied this process for the FPS and proposed that the reporting organization should provide a disclosure of the sourcing strategy, goals and policy regarding the following elements: *Protecting Natural Resources*; *Minimizing Toxicity*; *Fair Trade*; *Fair Compensation for Labor*; *Traceability*; *Genetically Modified Organisms (GMO)*; *Animal Welfare*; and *Biofuels*.

The reporting organization should explain how those of the above elements that are considered material are incorporated into the organization's sourcing strategies and processes. The reporting organization should state how it integrates sustainability considerations throughout its supply chain into its purchasing criteria. After analysis *Aspects* and following Hřebíček *et al.* (2012) and (G4 Sector Disclosure, 2014) is necessary to implement in organization's sustainability report:

- *economic category: Economic Performance Aspects* with indicators G4-EC1 and G4-EC4; *Procurement/ Sourcing Practices Aspects* with specific indicators FP1 and FP2;
- *environmental category: Materials Aspects* with indicators G4-EN1 and *Biodiversity Aspects* with indicators G4-EN11 and G4-N13;
- *social category: Labor Practices and Decent Work* sub-category with *Labor/Management Relations Aspect* and specific indicator FP3; *Society* sub-category with *Public Policy Aspects* and additional *Healthy and Affordable Food Aspects* and *Animal Welfare Aspects* with specific indicators FP9, FP10, FP11, FP12, FP13; *Product Responsibility* sub-category with *Customer Health and Safety Aspects* with indicator G4-PR1 and specific indicator FP5, FP6, FP7; *Product and Service Labeling Aspects* with indicator G4-PR3 and *Marketing Communications Aspects*.

The description of above indicators is detail described (G4 Sector Disclosure, 2014) and we will not discuss these here because of the extent of the paper.



1: Standard GRI G4 process for sustainability reporting (G4 Guidelines, 2013c)

SAFA Reporting Methodology for Food and Agriculture Sectors

Let us consider FAS with NACE economic activities (NACE, 2011): A – Agriculture, forestry and fishing section only with subsections 01 – Crop and animal production, hunting and related service activities excluding 01.07 (hunting, trapping and related service activities) and C – Manufacturing section only with subsections 10 – Manufacture of food products excluding 10.9 (feed industry) and 11 – Manufacture of beverages.

The most important state-of-art reporting methodology for FAS is the *Sustainability Assessment of Food and Agriculture* (SAFA) systems (SAFA, 2013; SAFA Guidelines, 2013; SAFA Indicators, 2013; SAFA Tools, 2013). It brought a holistic global framework for the assessment of sustainability along food and agriculture value chains (Hřebíček, Trenz, Vernerová, 2013; Hřebíček *et al.*, 2012, 2013; Popelka *et al.*, 2013; SAFA, 2013). This is one of the most important concepts of FAO that we took into consideration when informing the society and stakeholders about the progress done in the economic, social, environmental and governance areas. The SAFA framework can be applied as on *Small and Media Enterprises* (SMEs) as large-scale organizations and other stakeholders that participate in crop, livestock, forestry, and fishery value chains.

The SAFA Guidelines (SAFA Guidelines, 2013) have been developed several years (Hřebíček, Trenz, Vernerová, 2013; Popelka *et al.*, 2013) and they are based on certain core methodological principles including e Bellagio stamp (IISD, 2009; Pinter *et al.*, 2011). Additionally, SAFA draws upon the family ISO 14040 standards for Life Cycle Assessment (ISO14040, 2006), the International Social and Environmental Accreditation and Labelling (ISEAL) alliance Credibility Principles (ISEAL, 2013), the Reference Tools of the Global Social Compliance Programme (GSCP, 2010), and the GRI Sustainability Reporting guidelines (version 3.1 and 4) discussed in previous section. The founding document of SAFA system is the *SAFA Guidelines* (SAFA Guidelines, 2013). The SAFA documents includes further the *SAFA Indicators* document (SAFA Indicators, 2013) that outlines the protocols for setting assessment thresholds for the default sustainability indicators and also the *SAFA Tool* (SAFA Tool, 2013) which is an easy-to-use software package that facilitates conducting a SAFA specifically at the supply chain level.

SAFA systems enable for FAS organizations (i.e. farmers or companies): *Self-assessment for evaluating sustainability at the supply chain level; identifying hot-spots for performance improvement; performing gaps analysis with existing sustainability initiatives for thematic comparison; managing or benchmarking suppliers to improve sustainable procurement*. For governments, investors and policy-makers the SAFA systems enable (SAFA Guidelines, 2013): *Informing sustainable development strategies and*

goals; determining policy, investment and procurement priorities; providing a global guidance on sustainability requisites for the regulation of global supply chains.

The SAFA systems consider that FAS is characterized by four dimensions of sustainability: *Good Governance, Environmental Integrity, Economic Resilience and Social Well-Being*. Instead of GRI G4 is Good Governance with its indicators an integral part of the SAFA systems. Therefore, the SAFA systems methodology of sustainability reporting consists of four nested levels to enhance coherence between each other (SAFA Guidelines, 2013; Hřebíček, Vernerová, Trenz, 2013; Popelka *et al.*, 2013).

For each of these four dimensions of sustainability, SAFA systems outline essential elements of sustainability based on above mentioned international reference documents and conventions. SAFA systems consider 21 themes of universal sustainability goals, 58 sub-themes of sustainability objectives specific to supply chains (SAFA Guidelines, 2013) and 116 performance indicators for crops, livestock, forestry, fisheries and aquaculture enterprises (i.e. each sub-theme) facilitate measuring progress towards sustainability, see Annex I. The second level of the SAFA Framework contains a set of 21 core sustainability issues (i.e. G1, ..., G5 for Good Governance; E1, ..., E6 for Environmental Integrity; C1, ..., C4 for Economic Resilience and S1, ..., S6 for Social Well-Being). In the third level of SAFA Framework, each of the 21 sustainability themes is divided into sub-themes, or individual issues within SAFA themes (Annex I). The 56 sub-themes are relevant for supply chain actors doing a contextualization analysis and identify hot spot areas, as well as gaps in existing sustainability efforts. The *Default Indicators* within each sub-theme identify the measurable criteria for sustainable performance for the sub-theme. The SAFA systems can be adapted to different contexts and scopes in the given organization. These scopes can be presented as:

- *Supply chain scope* that describes all of the economic activities undertaken between the production of a primary commodity and the consumption of the final product of the given organization. These activities can be presenting as processing, delivery, wholesaling and retailing. In other word supply chain scope specified in setting the boundaries.
- *Temporal scope* that defines the time frame of the report of the given company. Usually in all reports, entity's activities for one-year interval are assumed. But there are some indicators, multi-year trends should be assessed or sustainability impacts be allocated to a longer period (for example a period of five years is suggested).
- *Thematic scope* that depicts the sustainability context, see Annex I.

There are four main phases of the SAFA systems assessment:

Step 1. *Mapping* that consists of two main activities: *Setting Goals* (defining the goals

of the assessment and description of the assessed entities of organization, this includes basic information such as the organization's size, sector and location etc.) and *Setting Scope* (identifying the boundaries of what will be included in the assessment of organization similarly as in GRI G4), (SAFA Guidelines, Section 2, 2013).

- Step 2. *Contextualization* is detailed mapping and boundary setting; the assessor will have collected a wide range of information about their context – meaning their geographic or regional circumstances, such as climate and resource availability, as well as their socio-political circumstances such as labour trends, legal framework and other such details. The purpose of contextualizing the default indicators is to refine the measurements and ratings to be appropriate, based on the circumstances surrounding the entity assessed. The default indicators provide essentially a frame for how to rate the performance of the entity, based on the context of the entity.
- Step 3. *Indicators*. There are refined the relevant contextualization of sub-themes through indicator selection and rating. Step 3 consists of four main activities: *Selecting appropriate tools and data collection. Calculation of the Accuracy Score. Selection and rating*

of indicators. Aggregation of results (SAFA Indicators, 2013).

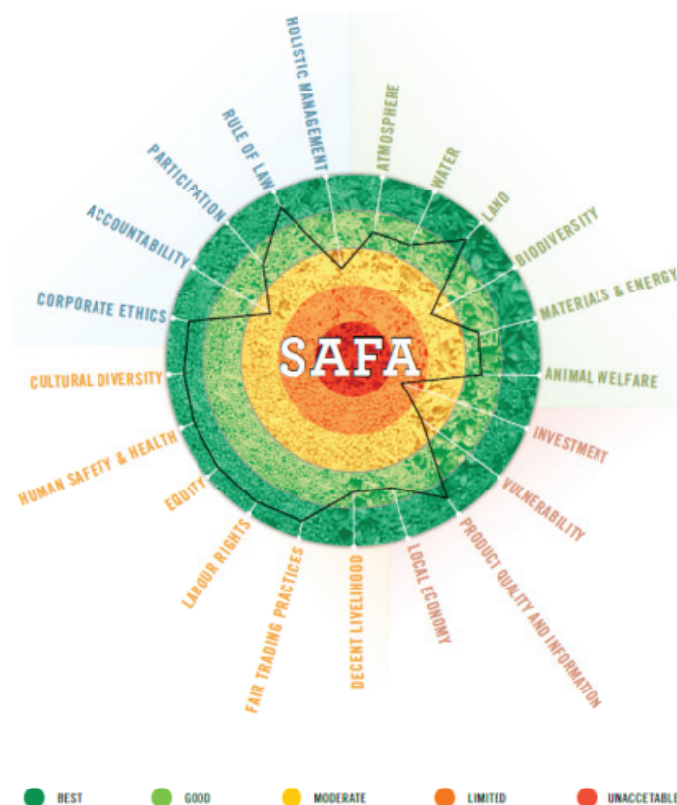
- Step 4. *Reporting*. Its framework consists of: *a visual representation of SAFA results; a complete SAFA Performance Report including boundaries, hot spot issues and data quality; Disclosure of procedure; and Critical review.*

SAFA Framework for Sustainability Reporting

We consider sustainability in FAS as a complex topic and even with aggregation of the over hundred indicators and 58 sub-themes, understanding all of this data can be challenging and difficult to communicate internally or externally. The SAFA illustration of the overall sustainability performance and sustainability gaps of hypothetical organization (farm, company, enterprise) is shown in Fig. 2.

This visualization of the SAFA sustainability performance ratings is depicted in the polygon of a hypothetical organization. The thick black line connects theme performance following a traffic light colour code: best/good (green), needs improvement (yellow/orange) or unacceptable (red).

The final sustainability report is a synthesis of the SAFA assessment of given FAS organization, including definition of scope, boundary setting, qualified themes' ratings (with the Accuracy scores), hotspot issues details, irrelevant sub-themes justified and areas for improvement identified. Details on the selected system boundaries, indicator, thresholds, data sources, inclusion of



2: SAFA sustainability polygon (SAFA Guidelines, 2013)

data from other sources including assumptions and performance ratings should be included. The Report should identify areas for improvements based on the contextualization and ratings.

A critical review fosters the quality, credibility and transparency of the assessment. The information and ratings included in a report should be supported by documentation that could be reviewed and understood by someone other than the Report author. The review should provide all information needed for a critical appraisal by interested stakeholders.

RESULTS

Implementation of Sustainability Reporting

In our vision, we foresee two main objectives of the web sustainability reporting information system (WESRIS) following from discussed reporting methodologies:

- An organization may use such a web sustainability reporting information system to create various reports and share data with both its stakeholders and, in the future, with the state administrations concerned with regulatory demands and mandatory corporate reporting.
- The sustainability assessment is performed by evaluating indicators by the means of one of the above discussed methodologies. This way, the organization can share with the public its performance (sustainability assessment) or check a sustainability development progress. Evaluating corporate sustainability performance can be done through various parts of sustainability reports as stated above or through custom dashboards.

We define the following three main generic actors of the web sustainability reporting information system (Kocmanová *et al.*, 2013):

- *Reporter* is a person responsible for ensuring organization mandatory reporting (especially financial, social and environmental) or reporting for stakeholders; this would typically be a member of the accounting team or a contractor. This is the typical actor who would enter data into the information system.
- *Evaluator* is a person responsible for sustainability assessment; this role can be represented by a wide range of people starting with managers, auditors and various internal interested parties. The evaluator may also enter data into the information system, but it is not his/her primary task, typically this would be the additional data required for the report generation, but not required as the part of mandatory reporting (e.g. organization strategy, goals a targets, vision etc.)
- *Administrator* is responsible for defining the report templates and business rules used to generate reports.

The web sustainability reporting system was developed and include a flexible layout design,

rich visualization, business requirements, and data logic definition etc. following SAFA guidelines and the G4 Guidelines. In addition, there is the need for translation or publishing requirements, a central deployment and the customization of interactive reports. These primary WESRIS functions represent a user-friendly reporting system with strong delivery capabilities of relevant reports. From the definition of the generic roles of WESRIS we proceed to basic functional requirements. Basic high-level requirements for the WESRIS were: *store source company data; compute performance indicators according to selected methodology; generate reports in the selected format for offline storage, printing and archiving; import source company data from the main company information system; provide selected information in the form of reports accessible online to the general public or only to selected persons; provide selected information in the standardized XBRL format for interchange with other systems; provide the possibility to evaluate company performance anonymously; provide the possibility to define report data and business logic; dynamically generate the XBRL taxonomies for a given report; provide the possibility to customize standardized reports and to generate fully customized reports; provide the possibility to compare reports.*

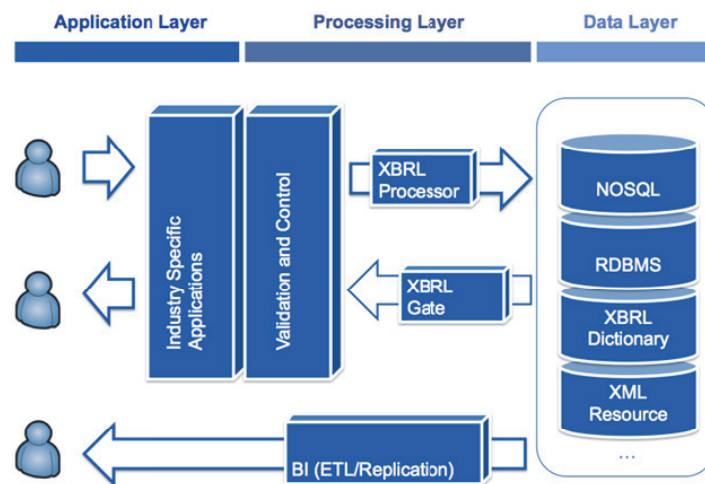
Non-functional requirements for the WESRIS were: *the system must be easy to use and accessible to the general public (not just to a few data analysts); as many indicator values as possible should be computed or imported from external sources; the system must be able to provide the software as a service (SAAS) for cloud computing; report layouts must be flexible; report visualizations should be rich and interactive.*

WESRIS Structure

The Fig. 3 shows an overview of WESRIS architecture based on an XBRL database. The main idea of this approach is a possibility of direct storing of XBRL data into an XML database that allows relational access to these data. The logical relational data model and the XBRL contents simplify the Business Intelligence integration (Hodinka *et al.*, 2012; Popelka *et al.*, 2013). The architecture of WESRIS is divided into application, processing and data layers.

The application layer accepts report submissions and provides the results of report queries. It is composed of various interfaces such as a web application user interface or some defined APIs. The application layer communicates with the storage layer via SQL queries or via the XQuery language. It defines the access tools and internet pro-ocols used for the following purposes: SOAP, REST, JDBC or file access via Web-DAV.

The data layer is composed of both the RDB system and the XBRL database. The data layer exposes both the relational and the XML interface so that the data can be queried by both SQL and XQuery languages. The application layer provides a wide range of APIs to connect the database to various sources. This offers a high interoperability of the WESRIS system. Alongside the application layer is the Business



3: WESRIS architecture

Intelligence engine (Hodinka *et al.*, 2012; Popelka *et al.*, 2013), which can benefit from direct access to the data layer. This will be possible if the data layer is self-containing, i.e., if it can provide an XBRL document with all the necessary taxonomies and templates.

For all the use cases of the generic actors – reporter and evaluator – we consider two scenarios. The WESRIS may be used either on a regular basis (a registered organization scenario) to generate scheduled organization sustainability reports (annual, quarterly, etc.), performance and to check the trailing corporate sustainability performance, and its development. The second scenario (an anonymous organization scenario) represents the case when a company wants to generate a one-time irregular report.

The second scenario can occur for example when the organization is applying a report for a subsidy or grant or when the organization is evaluating changes in the organization operation (e.g. restructuring), where a report would be generated for the period before the change and for the period after the change. The second scenario can also be seen as an entry point into the reporting system for organizations that do not use it regularly.

DISCUSSION

The prototype of above web sustainability reporting information system was implemented (Hodinka *et al.*, 2012; Hřebíček, Vernerová, Trenz, 2013; Kocmanová *et al.*, 2013; Popelka *et al.*, 2013) in the past two years. This prototype WESRIS was made to ensure that the chosen indicators can be

computed and implemented successfully and verify the usability of information system for the end user. It concentrated on the assessing sustainability of crop production systems for the conditions of the Czech Republic (Křen, 2011) and differs from new developed SAFA software (SAFA Tool, 2013).

By using WESRIS, the given company gains a whole set of advantages. The administration and editing of reports is much easier and much more effective for corporate performance evaluation. The implemented methodology in WESRIS makes it possible to assess the given company's sustainability (caused by its activity) by means of objective considerations; to conduct the comparison of different companies and evaluate whether their activities correspond to the principles of sustainable development.

This prototype WESRIS was also tested how it supported an efficient knowledge-based decision making for the sustainable development of FAS organizations (Kocmanová *et al.*, 2013). It was analysed how it integrated information from their various corporate governance, environmental, economic and social issues. More information about this prototype WESRIS can be found in (Hřebíček, Vernerová, Trenz, 2013; Popelka *et al.*, 2013; Kocmanová *et al.*, 2013). The above analysis of determinants state-of-art sustainability reporting open new tasks in our research: to develop a new release of the prototype of the web sustainability reporting system or to customize SAFA software (SAFA Tool, 2013).

We are in the stage to decide which way of the development of a state-of-art sustainability reporting software follows.

CONCLUSION

Corporate sustainability reporting has been the subject of extensive research in last decades. Sustainability Reporting (SR) is a voluntary organisation's activity with two general purposes: to assess the current state of an organisation's economic, environmental and social dimensions, and to communicate an organisation's efforts and sustainability progress to their stakeholders. SR can be used for assessing corporate sustainability performance over time, benchmarking against other organizations, and demonstrating how the organisation influences, and is influenced by, expectations about sustainable development. Since the end of the 1990s, SR has become an increasingly relevant topic in business and academia. However, it is still limited in food and agriculture sector (FAS) in the Czech Republic and European Union and only little information of the latest developments have thus far been presented. This paper provided state-of-art information dating from 2010 to 2014 from publications related to FAS. The paper identified what determinants of SR were examined in the world initiatives and identifies (in) consistencies, gaps, and opportunities for future research in this area. It focused to the Global Reporting Initiative (GRI) and its new G4 Guidelines including the Sector Disclosure for the Food processing sector. Further, it discussed the Food and Agriculture Organization (FAO) of the United Nation initiative with its developed Sustainability Assessment of Food and Agriculture systems (SAFA) together with the new SAFA Guidelines from 2013. Finally, the results of research of SR are presented: the prototype WESRIS – web sustainability reporting information system. The implemented methodology in WESRIS makes it possible to assess the given company's sustainability (caused by its activity) by means of objective considerations; to conduct the comparison of different companies and evaluate whether their activities correspond to the principles of sustainable development.

Acknowledgement

This paper is supported by the Czech Science Foundation. Name of the Projects: Construction of Methods for Multifactor Assessment of Company Complex Performance in Selected Sectors. [Nr. P403/11/2085] and Measuring corporate sustainability performance in selected sectors [Nr. 14-23079S].

Annex I. SAFA Themes, Sub-Themes, Default Indicators

I: Sustainability Dimension G: Good Governance

Themes	Sub-Themes	Default Indicators
G1 Corporate Ethics	G1.1 Mission Statement	G 1.1.1 Mission Explicitness
		G 1.1.2 Mission Driven
	G 1.2 Due Diligence	G 1.2.1 Due Diligence
G2 Accountability	G 2.1 Holistic Audits	G 2.1.1 Holistic Audits
	G 2.2 Responsibility	G 2.2.1 Responsibility
	G 2.3 Transparency	G 2.3.1 Transparency
G3 Participation	G 3.1 Stakeholder Dialogue	G 3.1.1 Stakeholder Identification
		G 3.1.2 Stakeholder Engagement
		G 3.1.3 Engagement Barriers
		G 3.1.4 Effective Participation
	G 3.2 Grievance Procedures	G 3.2.1 Grievance Procedures
G4 Rule Of Law	G 3.3 Conflict Resolution	G 3.3.1 Conflict Resolution
	G 4.1 Legitimacy	G 4.1.1 Legitimacy
	G 4.2 Remedy, Restoration And Prevention	G 4.2.1 Remedy, Restoration And Prevention
	G 4.3 Civic Responsibility	G 4.3.1 Civic Responsibility
	G 4.4 Resource Appropriation	G 4.4.1 Free, Prior and Informed Consent
G 4.4.2 Tenure Rights		
G5 Holistic Management	G 5.1 Sustainability Management Plan	G 5.1.1 Sustainability Management Plan
	G 5.2 Full-Cost Accounting	G 5.2.1 Full-Cost Accounting

II: Sustainability Dimension E: Environmental Integrity

Themes	Sub-Themes	Default Indicators
E1 Atmosphere	E 1.1 Greenhouse Gases	E 1.1.1 GHG Reduction Target
		E 1.1.2 GHG Mitigation Practices
		E 1.1.3 GHG Balance
	E 1.2 Air Quality	E 1.2.1 Air Pollution Reduction Target
		E 1.2.2 Air Pollution Prevention Practices
		E 1.2.3 Ambient Concentration of Air Pollutants
E2 Water	E 2.1 Water Withdrawal	E 2.1.1 Water Conservation Target
		E 2.1.2 Water Conservation Practices
		E 2.1.3 Ground And Surface Water Withdrawals
	E 2.2 Water Quality	E 2.2.1 Clean Water Target
		E 2.2.2 Water Pollution Prevention Practices
		E 2.2.3 Concentration of Water Pollutants
E3 Land	E 3.1 Soil Quality	E 2.2.4 Wastewater Quality
		E 3.1.1 Soil Improvement Practices
		E 3.1.2 Soil Physical Structure
		E 3.1.3 Soil Chemical Quality
		E 3.1.4 Soil Biological Quality
		E 3.1.5 Soil Organic Matter
	E 3.2 Land Degradation	E 3.2.1 Land Conservation and Rehabilitation Plan
		E 3.2.2 Land Conservation and Rehabilitation Practices
		E 3.2.3 Net Loss/Gain of Productive Land
E4 Biodiversity	E 4.1 Ecosystem Diversity	E 4.1.1 Landscape/Marine Habitat Conservation Plan
		E 4.1.2 Ecosystem Enhancing Practices
		E 4.1.3 Structural Diversity of Ecosystems
		E 4.1.4 Ecosystem Connectivity
		E 4.1.5 Land Use And Land Cover Change
	E 4.2 Species Diversity	E 4.2.1 Species Conservation Target
		E 4.2.2 Species Conservation Practices
		E 4.2.3 Diversity and Abundance Of Key Species
		E 4.2.4 Diversity Of Production
	E 4.3 Genetic Diversity	E 4.3.1 Wild Genetic Diversity Enhancing Practices
		E 4.3.2 Agro-Biodiversity in-Situ Conservation
		E 4.3.3 Locally Adapted Varieties And Breeds
		E 4.3.4 Genetic Diversity in Wild Species
		E 4.3.5 Saving of Seeds and Breeds
E5 Materials and Energy	E 5.1 Material Use	E 5.1.1 Material Consumption Practices
		E 5.1.2 Nutrient Balance
		E 5.1.3 Renewable And Recycled Materials
		E 5.1.4 Intensity Of Material Use
	E 5.2 Energy Use	E 5.2.1 Renewable Energy Use Target
		E 5.2.2 Energy Saving Practices
		E 5.2.3 Energy Consumption
		E 5.2.4 Renewable Energy
	E 5.3 Waste Reduction And Disposal	E 5.3.1 Waste Reduction Target
		E 5.3.2 Waste Reduction Practices
		E 5.3.3 Waste Disposal
		E 5.3.4 Food Loss And Waste Reduction
E6 Animal Welfare	E 6.1 Animal Health	E 6.1.1 Animal Health Practices
		E 6.1.2 Animal Health
	E 6.2 Freedom From Stress	E 6.2.1 Humane Animal Handling Practices
		E 6.2.2 Appropriate Animal Husbandry
		E 6.2.3 Freedom From Stress

III: Sustainability Dimension C: Economic Resilience

Themes	Sub-Themes	Default Indicators
C1 Investment	C 1.1 Internal Investment	C 1.1.1 Internal Investment
	C 1.2 Community Investment	C 1.2.1 Community Investment
	C 1.3 Long Ranging Investment	C 1.3.1 Long Term Profitability
		C 1.3.2 Business Plan
	C 1.4 Profitability	C 1.4.1 Net Income
		C 1.4.2 Cost of Production
		C 1.4.3 Price Determination
C2 Vulnerability	C 2.1 Stability of Production	C 2.1.1 Guarantee of Production Levels
		C 2.1.2 Product Diversification
	C 2.2 Stability of Supply	C 2.2.1 Procurement Channels
		C 2.2.2 Stability of Supplier Relationships
		C 2.2.3 Dependence on the Leading Supplier
	C 2.3 Stability of Market	C 2.3.1 Stability of Market
C3 Product Quality and Information	C 3.1 Food Safety	C 2.4.1 Net Cash Flow
		C 2.4.2 Safety Nets
		C 2.5.1 Risk Management
	C 3.2 Food Quality	C 3.1.1 Control Measures
		C 3.1.2 Hazardous Pesticides
		C 3.1.3 Food Contamination
C4 Local Economy	C 3.3 Product Information	C 3.2.1 Food Quality
		C 3.3.1 Product Labelling
	C 4.1 Value Creation	C 3.3.2 Traceability System
		C 3.3.3 Certified Production
	C 4.2 Local Procurement	C 4.1.1 Regional Workforce
		C 4.1.2 Fiscal Commitment
		C 4.2.1 Local Procurement

IV: Sustainability Dimension S: Social Well-Being

Themes	Sub-Themes	Default Indicators
S1 Decent Livelihood	S 1.1 Quality Of Life	S 1.1.1 Right To Quality of Life
		S 1.1.2 Wage Level
	S 1.2 Capacity Development	S 1.2.1 Capacity Development
S2 Fair Trading Practices	S 1.3 Fair Access To Means of Production	S 1.3.1 Fair Access to Means of Production
	S 2.1 Responsible Buyers	S 2.1.1 Fair Pricing and Transparent Contracts
S3 Labour Rights	S 2.2 Rights of Suppliers	S 2.2.1 Rights of Suppliers
	S 3.1 Employment Relations	S 3.1.1 Employment Relations
	S 3.2 Forced Labour	S 3.2.1 Forced Labour
	S 3.3 Child Labour	S 3.3.1 Child Labour
S4 Equity	S 3.4 Freedom of Association and Right to Bargaining	S 3.4.1 Freedom of Association and Right to Bargaining
	S 4.1 Non Discrimination	S 4.1.1 Non Discrimination
	S 4.2 Gender Equality	S 4.2.1 Gender Equality
S5 Human Safety and Health	S 4.3 Support to Vulnerable People	S 4.3.1 Support to Vulnerable People
		S 5.1.1 Safety and Health Trainings
	S 5.1 Workplace Safety and Health Provisions	S 5.1.2 Safety of Workplace, Operations and Facilities
S6 Cultural Diversity	S 5.2 Public Health	S 5.1.3 Health Coverage and Access to Medical Care
		S 5.2.1 Public Health
	S 6.1 Indigenous Knowledge	S 6.1.1 Indigenous Knowledge
	S 6.2 Food Sovereignty	S 6.2.1 Food Sovereignty

REFERENCES

- A4S. 2004. *The Prince's Accounting for Sustainability Project (A4S)*. [online]. Accessible at: <http://www.accountingforsustainability.org/>. [Accessed: 20. April 2014].
- BUSCO, C., FRIGO, M. L., RICCABONI, A., QUATTRONE, P. 2013. *Integrated Reporting: Concepts and Cases that Redefine Corporate Accountability*. Heidelberg: Springer.
- CDSB. 2014. *The Climate Disclosure Standards Board*. [online]. Available at: <http://www.cdsb.net/>. [Accessed: 20. April 2014].
- ECCLES, R. G and KRZUS, M. P. 2010. *One Report: Integrated Reporting for a Sustainable Strategy*. New Jersey: John Wiley & Sons.
- EMAS. 2014. *The European Eco-Management and Audit Scheme*. [online]. Available at: http://ec.europa.eu/environment/emas/index_en.htm. [Accessed: 20. April 2014].
- FAO. 1989. Sustainable development and natural resources management. In: *Twenty-Fifth Conference, Paper C 89/2 – Sup. 2*. Rome: FAO.
- FAO. 2014. *Food and Agriculture Organization of the United Nation*. [online]. Available at: <http://www.fao.org/>. [Accessed: 20. April 2014].
- FIFKA, M. S. 2013. Corporate responsibility reporting and its determinants in comparative perspective: a review of the empirical literature and a metaanalysis. *Business Strategy and the Environment*, 22: 1–35.
- FRÍAS-ACEITUNO, J. V., RODRIGUEZ-ARIZA, L. and GARCÍA-SÁNCHEZ, I. M. 2012. The role of the board in the dissemination of integrated corporate social reporting. *Corporate Social Responsibility and Environmental Management*, (20)4: 219–233.
- GRI DATABASE. 2014. *Sustainability Disclosure Database*. [online]. Available at: <http://database.globalreporting.org/>. [Accessed: 20. April 2014].
- GSCP. 2010. *Reference Tools of the Global Social Compliance Programme*. [online]. Available at: <http://www.gscpnet.com/working-plan.html>. [Accessed: 20. April 2014].
- G3 GUIDELINES. 2006. *G3 Guidelines*. [online]. Available at: <https://www.globalreporting.org/resource/library/G3-Guidelines-Incl-Technical-Protocol.pdf>. [Accessed: 20. April 2014].
- G3.1 GUIDELINES. 2011. *G3.1 Guidelines*. [online]. Available at: <https://www.globalreporting.org/resource/library/G3.1-Guidelines-Incl-Technical-Protocol.pdf>. [Accessed: 20. April 2014].
- G4 GUIDELINES. 2013a. *G4 Sustainability Reporting Guidelines*. [online]. Available at: <https://www.globalreporting.org/reporting/g4/>. [Accessed: 20. April 2014].
- G4 GUIDELINES. 2013b. *G4 Guidelines: Reporting principles and standard disclosures*. [online]. Available: <https://www.globalreporting.org/resource/library/GRIG4-Part1-Reporting-Principles-and-Standard-Disclosures.pdf>. [Accessed: 20. April 2014].
- G4 GUIDELINES. 2013c. *G4 sustainable reporting Guidelines: Implementation manual*. [online]. Available: <https://www.globalreporting.org/resource/library/GRIG4-Part2-Implementation-Manual.pdf>. [Accessed: 20. April 2014].
- G4 SECTOR DISCLOSURES. 2014. *G4 Sector Disclosures. Food processing*. [online]. Available: <https://www.globalreporting.org/resource/library/GRI-G4-Food-Processing-Sector-Disclosures.pdf>. [Accessed: 20. April 2014].
- HAHN, R., KÜHNEN, M. 2013. Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, 59: 5–21.
- HANSEN, J. W. 1996. Is agricultural sustainability a useful concept? *Agriculture Systems*, 50: 117–143.
- HODINKA, M., ŠTENCL, M., HŘEBÍČEK, J. and TRENTZ, O. 2012. Current Trends of Corporate Performance Reporting Tools and Methodology Design Of Multifactor Measurement Of Company Overall Performance. *Acta Univ. Agric. Silvic. Mendelianae Brun.*, 60(2): 85–89.
- HŘEBÍČEK, J., POPELKA, O., ŠTENCL, M. and TRENTZ, O. 2012b. Corporate performance indicators for agriculture and food processing sector. *Acta Univ. Agric. Silvic. Mendelianae Brun.*, 60(4): 121–132.
- HŘEBÍČEK, J., SOUKOPOVÁ, J., ŠTENCL, M. and TRENTZ, O. 2011. Integration of economic, environmental, social and corporate governance performance and reporting in enterprises. *Acta Univ. Agric. Silvic. Mendelianae Brun.*, 59(7): 157–166.
- HŘEBÍČEK, J., SOUKOPOVÁ, J. and TRENTZ, O. 2014. Current Trends of Economic Modelling of Sustainable Corporate Performance and Reporting – Review and Research Agenda. *Procedia Economics and Finance* [in print].
- HŘEBÍČEK, J., ŠTENCL, M., TRENTZ, O. and SOUKOPOVÁ, J. 2012a. Current Trends in Corporate Performance Evaluation and Reporting in the Czech Republic. *International journal of energy and environment*, 6(1): 39–48.
- HŘEBÍČEK, J., TRENTZ, O. and VERNEROVÁ, E. 2013. Optimal set of agri-environmental indicators for the agricultural sector of Czech Republic. *Acta Univ. Agric. Silvic. Mendelianae Brun.*, 61(7): 2171–2181.
- HŘEBÍČEK, J., VALTINOVÁ, S., KŘEN, J., HODINKA, M., TRENTZ, O. and MARADA, P. 2013. Sustainability Indicators: Development and Application for the Agriculture Sector. In: ERECHTCHOUKOVA, M. G., KHAITER, P. A., GOLINSKA, P. (eds.), *Sustainability Appraisal: Quantitative Methods and Mathematical Techniques for Environmental Performance Evaluation*. Heidelberg: Springer, 63–102.
- HSUA, C. W., LEEB, W. H. and CHAOC, W. C. 2013. Materiality analysis model in sustainability reporting: a case study at Lite-On Technology Corporation. *Journal of Cleaner Production*, 57: 142–151.

- IASB. 2014. *The International Accounting Standards Board (IASB)*. [online]. Available at: <http://www.iasplus.com/en/resources/ifrsf/iasb-ifrs-ic/iasb>. [Accessed: 20. April 2014].
- IFAC. 2014. *The International Federation of Accountants (IFAC)*. [online]. Available at: <http://www.ifac.org/>. [Accessed: 20. April 2014].
- IIRC. 2011. *Towards Integrated Reporting: Communicating Value in the 21st Century. Integrated reporting <IR>*. [online]. Available at: http://theiirc.org/wp-content/uploads/2011/09/IR-Discussion-Paper-2011_spreads.pdf. [Accessed: 20. April 2014].
- IIRC. 2013. *The International <IR> Framework*. [online]. Available at: <http://www.theiirc.org/wp-content/uploads/2013/12/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf>. [Accessed: 20. April 2014].
- IISD. 2009. *Bellagio STAMP: Sustainability Assessment and Measurement Principles*. Winnipeg: International Institute for Sustainable Development. [online]. Available at: <http://www.iisd.org/measure/principles/progress/bellagiostamp/>. [Accessed: 20. April 2014].
- ISEAL. 2013. *ISEAL Credibility Principles*. [online]. Available at: <http://www.iscalalliance.org/online-community/resources/iseal-credibility-principles-full-document-june-2013>. [Accessed: 20. April 2014].
- ISOHelpline. 2014. *Integrated Management System Documentation / Manuals for Integrated Certification*. [online]. Available at: http://www.isohelpline.com/ims_iso_9000_iso_14000_ohsas_18000_document_manual.htm. [Accessed: 20. April 2014].
- ISO 14040. 2006. *ISO 14040:2006. Environmental management – Life cycle assessment – Principles and framework*. [online]. Available at: http://www.iso.org/iso/catalogue_detail?csnumber=37456. [Accessed: 20. April 2014].
- ISO 26000. 2010. *ISO 26000 – Social responsibility*. [online]. Available at: <http://www.iso.org/iso/iso26000>. [Accessed: 20. April 2014].
- KOCMANOVÁ, A., HŘEBÍČEK, J., DOČEKALOVÁ, M., HODINKA, M., HORNUNGOVÁ, J., CHVÁTALOVÁ, Z., KUBÁLEK, T., POPELKA, O., ŠIMBEROVÁ, I., TOPOLOVÁ, I. and TRENZ, O. 2013. *Měření podnikové výkonnosti (Measuring business performance)*. Brno: Littera.
- KOLK, A. 2010. Trajectories of sustainability reporting by MNCs. *Journal of World Business*, 45: 367–374.
- KPMG. 2010. *KPMG Promotes Integration of Company Reports*. [online]. Available at: <http://www.kpmg.com/RO/en/IssuesAndInsights/ArticlesPublications/Press-releases/Pages/Integrated-Reporting.aspx>. [Accessed: 20. April 2014].
- KPMG. 2012. *Integrated reporting – the business case: Why do it?* [online]. Available at: <http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/integrated-reporting/Pages/the-business-case.aspx>. [Accessed: 20. April 2014].
- KŘEN, J. 2011. *Metodika hodnocení trvalé udržitelnosti systémů rostlinné produkce pro podmínky ČR (Methodology for assessing the sustainability of crop production systems for CR conditions)*. Brno: Mendelova univerzita v Brně.
- LOZANO, R. and HUISINGH, D. 2011. Inter-linking issues and dimensions in sustainability reporting. *Journal of Cleaner Production*, 19: 99–107.
- LOZANO, R. 2013. Sustainability inter-linkages in reporting vindicated: a study of European companies. *Journal of Cleaner Production*, 51: 57–65.
- MORHARDT, J. E. 2002. *Clean, Green and Read All Over: 10 Rules for Effective Corporate Environmental and Sustainability Reporting*. ASQ Quality Press.
- MORHARDT, J. E. 2010. Corporate Social Responsibility and Sustainability Reporting on the Internet. *Business Strategy and the Environment*, 19: 436–452.
- NACE. 2011. *List of NACE codes*. [online]. Available at: http://ec.europa.eu/competition/mergers/cases/index/nace_all.html. [Accessed: 20. April 2014].
- OECD. 1999. *Environmental Indicators for Agriculture*. Volume 1. Issues and Design. Paris: OECD Publishing.
- OECD. 2001. *Environmental Indicators for Agriculture*. Volume 3. Methods and Results. Paris: OECD Publishing.
- OECD Guidelines. 2010. *OECD Guidelines for Multinational Enterprises*. [online]. Available at: http://www.oecd.org/document/28/0,3746,en_2649_34889_2397532_1_1_1_1,00.html. [Accessed: 20. April 2014].
- PINTER, L., HARDI, P., MARTINUZZI, A. and HALL, J., 2012. Bellagio STAMP: Principles for sustainability assessment and measurement. *Ecological Indicators*, 17: 20–28.
- POPELKA, O., HODINKA, M., HŘEBÍČEK, J. and TRENZ, O. 2013. Information System for Global Sustainability Reporting. In: *Environmental Software Systems. Fostering Information Sharing, 10th IFIP WG 5.11 International Symposium, ISESS 2013*, Neusiedl am See, Austria, October 9–11, Berlin Heidelberg: Springer, 630–640.
- SA. 2008. *SOCIAL ACCOUNTABILITY 8000*. [online]. Available at: http://www.sa-intl.org/_data/n_0001/resources/live/2008StdEnglishFinal.pdf. [Accessed: 20. April 2014].
- SAFA. 2013. *Sustainability Assessment of Food and Agriculture systems (SAFA)*. [online]. Available at: <http://www.fao.org/nr/sustainability/sustainability-assessments-safa/en/>. [Accessed: 20. April 2014].
- SAFA GUIDELINES. 2013. *SAFA. Sustainability Assessment of Food and Agriculture systems. GUIDELINES*. Version 3.0, Rome: FAO. [online]. Available at: http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/SAFA_Guidelines_Version_3.0.pdf. [Accessed: 20. April 2014].

- SAFA INDICATORS. 2013. SAFA. *Sustainability Assessment of Food and Agriculture systems. INDICATORS*. Version 3.0, Rome: FAO. [online]. Available at: http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/SAFA_Indicators_Version_3.0.pdf. [Accessed: 20. April 2014].
- SAFA TOOL. 2013. SAFA. *Sustainability Assessment of Food and Agriculture systems. TOOL. USER MANUAL BETA VERSION 2.1.50*, Rome: FAO. [online]. Available at: http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/SAFA_Tool_User_Manual_2.1.50.pdf. [Accessed: 20. April 2014].
- SEARCY, C. and ELKHAWAS, D. 2012. Corporate sustainability ratings: an investigation into how corporations use the Dow Jones Sustainability Index. *Journal of Cleaner Production*, 35: 79–92.
- SCHALTEGGER, S. and WAGNER, M. 2011. Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business Strategy and the Environment*, 20(4): 222–237.
- STUBBS, W., HIGGINS, C. and MILNE, M. 2013. Why Do Companies Not Produce Sustainability Reports? *Business Strategy and the Environment*, 22: 456–470.
- ŠIMBEROVÁ, I. and KOČMANOVÁ, A. 2012. Corporate Governance – Research of Key Indicators on Market of Processing Industry in the Czech Republic via Cluster Analysis. *Acta Univ. Agric. Silvic. Mendelianae Brun.*, 60(7): 359–368.
- UNCED. 1992. *Agenda 21 – an action plan for the next century*. [online]. Available at: <http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>. [Accessed: 20. April 2014].
- UNEPFI. 2014. *The United Nations Environment Programme Finance Initiative (UNEP FI)*. [online]. Available at: <http://www.unepfi.org/>. [Accessed: 20. April 2014].
- UN GLOBAL COMPACT. 2014. United Nations Global Compact. [online]. Available at: <http://www.unglobalcompact.org/>. [Accessed: 20. April 2014].
- VALTÝNIOVÁ, S. and KŘEN, J. 2011. Indicators used for assessment of the ecological dimension of sustainable arable farming – review. *Acta Univ. Agric. Silvic. Mendelianae Brun.*, 59(3): 247–256.
- WBCSD. 2002. *Sustainable Development Reporting: Striking the balance*. [online]. Available at: <http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=144&nosearchcontextkey=true>. [Accessed: 20. April 2014].
- WBCSD. 2014. *World Business Council for Sustainable Development*. [online]. Available at: <http://www.wbcsd.org/>. [Accessed: 20. April 2014].
- WIEK, A. and BINDER, C. 2005. Solution spaces for decision-making – a sustainability assessment tool for city-regions. *Environment Impact Assessment Review*, 25: 589–608.
- WSSD. 2002. *Report of the World Summit on Sustainable Development, Johannesburg 2002*. New York: United Nations publication.

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