

ENVIRONMENTAL REPORTING: PRINCIPLES AND MAIN CHALLENGES

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Abstract

Environmental challenges have been obtaining momentum for the last 10 years. With them the need to be in a position to track and manage the performance vis-à-vis the environment of the various types of organizations, as well as countries. Environmental reporting is impossible without the existence of environmental accounting since reporting information is in many cases based on accounting data. Hence the valid question what environmental accounting is and what it should be.

The aim of the current paper is to review the fundamentals of environmental accounting in light of its importance for environmental reporting and to define the principles and main challenges ahead of the latter in present times.

Key words: *environmental reporting, environmental accounting, carbon accounting*

1. INTRODUCTION

Modern economic development is based on the use of natural resources, their processing into various types of products, which, after being used, are mostly disposed of in the form of waste. This waste, unfortunately, for the most part is not processed, i.e. the economy follows mainly a linear rather than a circular model, which assumes the processing of the discarded waste and its return to the production cycle. As a result, a number of negative phenomena have been particularly pronounced worldwide over the last 20 years, which are undoubtedly the result of anthropogenic activity - increasing environmental pollution (due to the accumulation of non-recyclable waste), abrupt and in some cases detrimental climate change.

The governments of the worlds leading economies, within international governmental organizations such as the United Nations, are discussing these phenomena and looking for ways to overcome their harmful effects on both the world economy and the quality of people's lives. As a result of numerous negotiations and initiatives, policies have been developed both at micro and at macro level, affecting the economies as a whole. There is growing talk of the urgent need to expand the scope of the circular economy until the final replacement of the linear model. This is the proclaimed policy of the European Union (European Union) and China, which have adopted specific goals for their economies in this direction and have placed the circular economy among their main priorities in the medium term.

However, in order to be able to implement this policy, it is crucial to have the necessary data on how the economy works at both macro and micro levels. This would not be possible, if there were no relevant standards for accounting for the impact of individual activities of enterprises and the state on the environment. The need to monitor and manage changes in the environment, which materialize both in the pollution of the biosphere and in various manifestations of climate change, raises the need to create and implement standards and rules in accounting and reporting in order to provide adequate information about this important question.

In the globalized modern world, in which the independent existence of any country is almost unthinkable, the implementation of international comparisons and the aggregation of information at world level is a prerequisite for the success of the efforts to eliminate environmental pollution. That is why the global intergovernmental organizations - the United Nations (UN), the World Bank (WB), the International Monetary Fund (IMF), the EU, the Organization for Economic Cooperation and Development (OECD) are the forums in which the main debate on the nature and characteristics of environmental accounting and reporting worldwide rules are being created and revised.

2. TYPES OF ENVIRONMENTAL ACCOUNTING AND REPORTING

In terms of its scope, environmental accounting and reporting are divided into three types: corporate (corporate), national and global (international). Company accounting aims to reflect the company's activities related to the environment. The different types of costs it incurs for the benefit of the environment, the possible damages to it that it generates through its activity, as well as the possible indirect benefits for nature from the existence of the company are considered.

In addition, environmental corporate accounting and reporting are divided into management corporate accounting and reporting, and financial environmental accounting and reporting. In particular, these types of accounting and reporting can be defined as "the identification, collection, analysis and use of two types of information for decision-making within the company: 1) data on the physical use of energy, water and materials, including waste, and 2) data on the monetary value of spending, saving and accumulating funds related to the environment.

On the other hand, the main task of financial environmental accounting and reporting is to provide financial information to stakeholders outside the company about the company's activities related to the environment.

The System of Environmental-Economic Accounting (SEEA) is designed to establish internationally accepted standard concepts, definitions, classifications and accounting rules that are valid for all countries. The unification of the rules facilitates the management of environmental efforts worldwide and makes it possible to make various international comparisons. In essence, the SEEA follows the approach adopted in the System of National Accounts (SNA). All concepts, classifications, definitions and terms are compatible with the SNA. The aim is to facilitate the integration of environmental statistics into economic statistics [1].

Historically, the creation of the SEEA began after the so-called "Agenda 21" was adopted in 1992 at the UN conference in Rio de Janeiro. This agenda justifies the need to create a program for the development of national statistical systems both in the field of economy and in the field of ecology. The importance of maintaining statistics in an integrated form is emphasized, i.e. covering both sides of the various activities within the economies of individual countries. This concept contrasts with the hitherto dominant paradigm, according to which statistics should only reflect activities that have a direct and visible economic result. With the recognition of the importance of environmental protection, which naturally leads to the understanding that environmental problems have a value expression, comes the understanding of the need to create and monitor environmental statistics.

As a result, in 1993 a Handbook on National Accounting was developed setting out principles for integrated environmental and economic accounting and hence - reporting. Following numerous reviews and opinions of experts from around the world involved in compiling this handbook and monitoring its adequacy, as well as gathering information on practical issues and opportunities in implementing the handbook, ten years after its creation, in 2003, its second version has been released. It turns out that the integration of environmental and economic statistics raises many issues that are complex, they do not have sufficient experience at national level, and therefore in 2005 the UN Statistical Office organized a special committee of experts on environmental and economic accounting. This committee consists of representatives of national statistical offices as well as international agencies. Their main tasks are to revise the 2003 version of the handbook and to create a statistical standard to be applied for the purposes of official statistics. A Bureau of the Committee of Environmental and Economic Accounting Experts has been nominated from among the committee to coordinate the process. During the work of the committee, opinions were collected from national statistical offices and various international organizations, and on the website of the UN Statistical Office various opinions were published for discussion, accepting comments and remarks from around the world.

Following this debate, in 2012, the main document of the UN Conference on Sustainable Development, known as Rio + 20, again held in Rio de Janeiro, made a clear recommendation to consolidate data and information on social, economic and environmental aspects of human activity, so that managers at all levels have full information about its results and thus adequate decisions to be made. Thus, in 2012, at its 43rd meeting, the UN Statistics Committee adopted the original version of the International Statistical

Standard for Environmental and Economic Accounting or the so-called Central Framework of the Environmental and Economic Accounting System. This framework is not mandatory for individual countries, they can start to apply it gradually, thus giving them the flexibility that individual economic operators need due to the many specifics of environmental accounting.

The central framework is interdisciplinary in nature. It covers a very wide range of information, the aim being in economic statistics, thanks to the application of certain accounting principles for the presentation of information by individual economic entities, to reflect as fully as possible the environmental phenomena at macro level. In general, the modern view presupposes the consideration of economic activities in their ecological aspects. This is also the aspiration expressed in the document itself. For example, the modern economy and the various economic processes in general cannot be considered without taking into account the trends in the use of natural resources, as well as the extent to which they are available. It would be difficult to talk about modern reporting without taking into account the environmental effects that are observed as a result of waste disposal or the importance of carbon emissions generated in different industries.

3. CARBON ACCOUNTING AND REPORTING

For the purposes of government statistics, national environmental accounting and reporting practically summarizes both the data provided by companies, applying the principles of corporate environmental accounting, and the data available to the state in relation to the results of its enterprises. International environmental accounting is a specially designed accounting methodology for reporting and tracking globally all environmental issues. One of the important aspects of environmental accounting is related to the tracking of data on the carbon footprint of companies. The term "carbon accounting" refers to the process of measuring the amounts of carbon dioxide that an economic entity has generated in its activities. Keeping records of this dimension of companies' activities is extremely difficult and controversial, due to a number of purely methodological issues that arise in the process of collecting and compiling the necessary data. However, as this reporting is mandatory for some companies in the EU, it is important to highlight some of its main features.

So far, the problems of carbon accounting have not been thoroughly studied [2]. This is a relatively new territory for both accounting and practice research.

The need for carbon accounting in the EU is due to the adopted emissions trading scheme, which came into force in 2005 and is currently the largest such scheme in the world. It regulates trade both between countries and between companies. Through its implementation, the EU seeks to achieve its goal - to achieve by 2020 a reduction of 20% in greenhouse gas emissions from EU countries compared to the level of these gases in the base year 1990. The rules of this scheme, each country must set an emission ceiling, after which the so-called greenhouse gas emission permits are allocated to it [3]. With these permits, it can trade on the European carbon market. However, in order to achieve their individual goals, each EU country must ensure that individual companies within its own borders also have the appropriate emission ceilings and comply with them. Businesses, in turn, can also trade in permits that are allocated to them. However, in order for this to be possible, it is necessary to keep records of the emissions consumed in the process of their actual activity, and this reporting must be traceable. In this context, in December 2004, the International Accounting Standards Board (IASB) issued a special guidance document on how to keep accounts of emissions and marketing authorizations under the name IFRIC 3. However, once they have been implemented, it turns out that these guidelines do not have a complete form and cause many contradictions in practice. Therefore, in 2005 they were withdrawn from the IASB, after which a discussion on their improvement was initiated, which continues to this day.

There are several theories and schools that seek to propose a solution to the question of how carbon is accounted for. So far, a significant amount of scientific literature has been written on this issue. Below we focus on some key points presented in the literature review proposed by the **Association of Chartered Certified Accountants (ACCA)** in their study of the problems and practices of accounting for carbon emissions [4].

In particular, the ACCA distinguishes three main theoretical frameworks in this area. The first covers theories about the role of accounting in society, the second - theories that deal with specific ways of measuring and accounting for emissions and the third - the so-called hybrid markets.

Researchers who trace the question of the role of accounting and reporting in society, such as Hopewood and Miller, maintain that accounting and reporting does not only affect the specific company that implements them, but has an impact on society [5]. Therefore, the ways in which accounting and reporting are done in relation to phenomena such as climate change (which are thought to be caused mainly by the growing amount of harmful emissions, including carbon emissions), as well as the way in which accountants themselves address such issues has a global significance that goes beyond the narrow confines of the accounting profession and practice. Accounting should not be seen as an isolated internal organizational practice. It is influenced by the changes that occur in society, and also in turn affects society, as it presents in numerical terms the results of individual organizations and therefore based on them builds the idea of success or failure of an organization.

Other authors, such as Bebbington and Larringa [6], Cook [7] and Lochman [8], discuss accounting and reporting and climate change and seek answers to the question of the role of accounting in tracking this contemporary phenomenon. Accounting is designed to reflect the economic reality and preferences of society, as well as the practices observed in it. Therefore, when seeking solutions to accounting problems related to carbon emissions, it should be considered according to the supporters of these theories in a broad sense - in the context of government policies and the impact that the decisions reached would have on individual economic entities and on society as a whole.

A number of scholars, such as Thompson [9], Miller and O'Leary [10], in their 1994 study, drew attention to cases where government policies influence decisions to introduce one or another accounting and reporting practice. As carbon accounting and reporting have yet to be developed, it is very important to follow the lines of government policy in individual countries and how it affects the principles of this accounting to be adopted. Carbon accounting and reporting are about finding a way to quantify and present carbon emissions.

The following group of theories discusses the measurement and calculation methods needed to account for carbon emissions. Some of these theories, as noted in the ACCA study, are not only in the field of accounting, but are interdisciplinary in nature. The need to make connections with other sciences is necessary due to the very nature of the object under consideration - carbon emissions. The aim is to find some way to characterize carbon emissions so as to establish how they can be accounted for. The authors who address this issue are Alonso and Starr [11], Espeland and Stevens [12], Bowker and Leigh Star [13], and Robson [14].

Carbon emissions can be classified as an object that cannot be measured or compared to another similar due to the peculiarities of their characteristics. In particular, Bowker and Leigh Star emphasize the need to analyze precisely such objects, as their existence signals unresolved issues. Carbon emissions cannot fall into any of the existing accounting standards and are therefore extremely difficult to classify.

The main part of the problem with the ways of accounting and reporting for emissions consists in the numerous types of use of permits for them. On the one hand, they are a commodity, they can be traded, on the other - a kind of means of payment, i.e. currency, thirdly - a financial instrument. However, this situation is the result of policy decisions on the use and authorization of carbon emissions, these decisions are in fact the basis for the functioning of the emissions trading system. On the other hand, the operation of this system is based on the expectation that the EU targets for reducing greenhouse gas emissions will succeed. Therefore, a way must be found to compare issues and permits for trading with certain other types of accounting items so that they can fall within the regulations of one or more accounting standards.

The third theoretical framework, in the context of which answers are sought to the question of how to organize the accounting of carbon emissions, is that of the so-called hybrid markets. Apologists for the theory of market hybridity view them not simply as separate units that are part of the economy, but as a collection of many separate economic entities, technologies and the environment in which they operate.

Among the authors working in this direction are White [15], Fligstein [16], Callon [17], Barry [18], Hardy and Mackenzie [19], Mackenzie [20, 21], ‘, Pryke [22] and others. Some of them work in the field of economic sociology. The value of these authors' ideas on this issue lies in the proposal to look at the carbon market from an experimental point of view, which means that perhaps no attempt should be made to apply some of the existing accounting standards for the purposes of the reporting of emissions and permits for trading in them, and to consider the possible introduction of an entirely new standard to treat them in view of the many atypical features of other existing assets.

As Callon rightly points out, the formation of carbon markets is not yet mature. Consensus on a number of fundamental issues for the carbon market has not yet been reached, both among market participants and politicians and academics, and at the same time it needs to work. In this way, unresolved issues of a wide variety, including accounting and reporting, continue to exist. In his analysis of the differences between carbon and other commodities, Lochmann [23] points out that it is quite common to encounter difficulties when a new commodity emerges, the proper treatment of which depends entirely on the creation of new accounting rules.

The same author emphasizes the fundamental importance of accounting for both the proper functioning of carbon markets and the success of efforts to tackle climate change.

As a result of the review of the accounting practices applied in the EU in the field of carbon accounting and reporting, the ACCA study concludes that companies, significant sources of emissions, use a wide variety of accounting and reporting practices to maintain emission permits. Most of them have adopted the practice of considering emission permits as a type of intangible asset. Some companies file permits with zero value, based on the consideration that they are issued for zero value. A small part follows the guidelines of IFRIC 3 permits to be initially recognized at fair value. According to Angelov, goodwill is an intangible asset that expresses the added value of a company due to its potential to generate additional income [24]. Another significant problem is the fact that the majority of companies do not disclose information on depreciation or revaluation of emissions. There is also considerable divergence in the ways in which information on the overall positions of companies is published, which positions consist of emission permits – i.e. the net amount of assets or liabilities. Angelov [25] rightly points out that different methods of valuation of assets, the principles of depreciation of assets can lead to the fact that the value of the same assets to be different depending on the methods that will be used by accountants.

4. THE UNCTAD HANDBOOK FOR COMPILERS AND USERS OF ECO-EFFICIENCY INDICATORS (2004)

The UNCTAD Handbook for Compilers and Users of Eco-Efficiency Indicators aims to offer specific answers to various questions related to the development of eco-efficiency indicators, which in their entirety will compile the accountability of an organization on this important aspect of its activities.

All recommendations in the manual are made in accordance with international accounting standards in order to facilitate the work on their adoption.

It can be summarized that the objectives of the handbook are three: to provide guidance on how information on the environmental performance of the organization to be defined, recognized, measured and disclosed within existing accounting and reporting standards, and secondly - to improve and harmonize methods for accountability so as to ensure comparability of data from different enterprises and, thirdly, to complement existing guidelines, such as those of the GRI, for such reporting.

The UNCTAD guidelines identify five areas in which environmental performance reporting should be prepared and for which guidelines are provided:

- Energy use;
- Use of water;
- Contribution to global warming;

- Contribution to the depletion of the ozone layer;
- Waste.

5. SUSTAINABILITY ACCOUNTING STANDARDS BOARDS (SASB)

The Sustainability Accounting Standards Board (SASB) was established in 2011 in the United States as a non-profit organization. The main goal of its activity is to develop and disseminate reporting standards in the field of sustainable development, part of which is environmental reporting. The idea is that these standards can be used not only by organizations that volunteer, but also by companies that are required to provide similar reporting in the United States and elsewhere in the world. The SASB creates reporting guidelines for 10 economic sectors, in which 83 industries are distributed. In this way, virtually any organization can find instructions on how to create accountability related to sustainable development and in particular the environment. Each standard consists of an average of five topics and 14 industry-specific indicators, most of which are quantitative.

The first company to start using SASB standards was Bloomberg.

The indicators and data provided by the organization wishing to follow the standards must meet certain minimum criteria. These criteria are eight in number. Data must be:

- Relevant, which means that they should adequately describe the organization's performance on the issue;
- Useful - to provide information that is of specific benefit to decision makers within the organization, as well as to potential investors in it;
- Applicable - to be valid for the majority of companies in the sector;
- Cost-effective - to be of such a nature that no special collection is required, i.e. they should be part of the reporting, but in some form that has been prepared so far, and no significant costs are required;
- Comparable - to be used for comparisons by the majority of companies in a given sector;
- Complete, complete - to be comprehensible in themselves and to be able to be used independently for analyzes on the specific topic they cover, not to have to be considered in conjunction with other indicators in order to be understood;
- Guiding - to provide clear information on whether their numerical change is a signal of change in the performance of the company;
- Be verifiable [33].

In turn, the topics covered by the standard also have certain characteristics. The main part of them are the following:

- Applicability for all investors - bring significant information to stakeholders;
- Focus on taking into account the extent to which an issue related to sustainable development, including the environment, is related to the creation of lasting added value for the organization, reducing the risks for it, the assessment that stakeholders give it;
- Expecting to bring more benefits than costs;
- Be able to lead to actions by organizations that apply the standards, be within their control;
- Be verifiable and, if possible, numerical;
- Objectivity and usefulness for the management of the organizations that implement the standards;
- Compatibility with international accounting stand.

CONCLUSION

The impending changes in environment and the pressing climate challenges are leading to a more and more pronounced need for establishing worldwide accounting and reporting principles. Coming up with such principles that are valid for all industries and for all countries proves to be practically impossible due to the large diversity that exists among sectors. To date, there are a number of initiatives at international and global level that strive for the establishment of at least certain principles on which further accounting and reporting detailed practices to be built. Whether they will be successful in the long term remains to be seen. What is certain is that as time passes, environmental accounting and reporting are becoming an indispensable part of accounting and reporting for all organizations.

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