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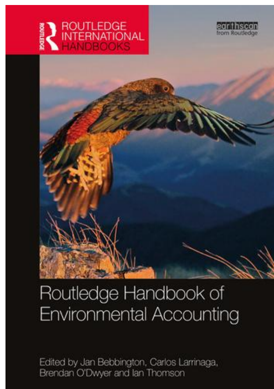

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Financial accounting and the natural environment

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7

FINANCIAL ACCOUNTING AND THE NATURAL ENVIRONMENT

Thereza Raquel Sales de Aguiar and Jan Bebbington

Introduction

This chapter provides insight into the challenges that environmental issues raise for financial accounting, focusing narrowly on the financial statements, along with associated notes to the accounts. This narrow focus, however, needs to be briefly dispensed with in order to place this chapter into a wider context and to demonstrate how an interest in financial accounting issues intersects with other chapters in this handbook. For example, this chapter should be read in conjunction with Chapter 2, which presents a review of the foundations of environmental accounting, as well as Chapter 5, where the contributions of the accounting profession are considered. Likewise, the various regional chapters (Part 4) will contain material that is relevant to financial accounting considerations. Finally, chapters 11 and 12 contain insights into what happens to financial accounting information when it encounters shareholders and capital markets, respectively.

From the outset of the environmental accounting field, there was the concern that financial statements mis-represented "reality" because they did not reflect the impact of organisations on the natural environment. Indeed, Gray (1990) questioned if a "true and fair view" of an organisation could be presented if its impact on the natural environment is not taken into account. Likewise, the annual report and accounts "package" was the first place where disclosures were made concerning organisations' environmental impacts (see, e.g., Gray et al. 1995; Gray et al. 2014; KPMG et al. 2016; KPMG 2017; Bebbington et al. 1994). As time progressed, some of what was previously disclosed within annual reports moved in "stand-alone" formats (see Chapter 8 where this form of accounting is further considered). Moreover, the audit function has also been enrolled in supporting the disclosure practices of organisations (see also Chapter 9). Given the proliferation of disclosure practices in other formats, what might need to be disclosed in the financial accounts narrowed and to understand the scope of this chapter a brief revisiting of the focus and purpose of financial accounting is necessary.

Financial accounting reporting: focus and purpose

The American Accounting Association (AAA) defines accounting as "the process of identifying, measuring and communicating economic information to permit informed judgements

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and decisions by users of the information"(American Accounting Association 1966, p. 1). In order to regulate this practice, account providers are governed by the need to make certain disclosures (mandated by national laws as well as stock exchange listing requirements) alongside requirements to apply particular measurement and classification practices (found in accounting standards). Parallel to these requirements, various national and international standard setting and guidance processes ensure that accounting professionals are able to implement these requirements with oversight provided by relevant authorities (in the United Kingdom, e.g., this is the Financial Reporting Council – hereafter FRC). All these bodies have a desire to ensure that financial statements show a "true and fair" view of the underlying "reality" of the firm, and what this might be is underpinned by the conceptual framework in which accounting sits. The most accepted conceptual framework is the Framework for Preparation and Presentation of Financial Statements issued by the International Accounting Standards Board (IASB) in 1989. This framework consists of eight chapters, which describe the main concepts in financial reporting. The following paragraphs provide a summary of these chapters, highlighting the main concepts in the IASB Conceptual Framework that are relevant for the purpose of this chapter.

Financial information should be produced in accordance with a set of qualitative characteristics. As illustrated in Table 7.1, the IASB Conceptual Framework adopts two fundamental and four enhancing qualitative characteristics (IFRS Foundation 2018). In addition to these characteristics, the conceptual framework also makes reference to prudence and "substance over form" to support the qualitative characteristics of financial information (ACCA 2018). Prudence refers to exercising "caution" when faced with uncertain circumstances in order to avoid optimistic considerations (ACCA 2018; IFRS Foundation 2018). "Substance over form" is applied to ensure that information provides a faithful representation of economic resources of an entity (ACCA 2018) and a faithful representation of economic situation should prevail over the established rules/standards for elaboration of financial statements (ACCA 2018; IFRS Foundation 2018).

Table 7.1 Qualitative characteristics of financial information

Characteristic type	*Qualitative characteristics*	*Description*
Fundamental	Relevant information	Information is relevant if users would make a different decision in the absence of it.
	Faithfull information	Faithfulness requires that information should be neutral and free from bias and errors.
Enhancing	Timeless	Information is timely if it enables users' decision-making.
	Understandability	Information should be clear and concise.
	Verifiability	If independent observers agree on the measurement and presentation of information, it can be said to be verifiable.
	Comparability	Information should enable the identification and understanding of similarities between organisations.

Source: IFRS Foundation (2018) and Grant Thornton (2018).

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The IASB Conceptual Framework establishes the principles for financial reporting, with this information being provided for a reporting entity (establishing the boundaries of a reporting entity is a non-trivial task). The IASB defines a reporting entity as:

> [A]n entity that is required, or chooses, to prepare financial statements. A reporting entity can be a single entity or a portion of an entity or can comprise more than one entity. A reporting entity is not necessarily a legal entity.
>
> *(IFRS Foundation 2018, p. A33)*

In addition, the IASB Conceptual Framework also establishes norms with regard to the time period of financial information to be considered. Moreover, and critically, information should be produced assuming that the organisation is a going concern, that is, it will continue to operate in the future (IFRS Foundation 2018). The form of the accounts to be presented is also specified. Table 7.2 describes the types of financial statements specified by the IASB Conceptual Framework. The recognition (capturing for inclusion) of the elements of financial statement should be done in line with qualitative characteristics of financial reports explained above and derecognition (removal of items from financial statements) of these elements should represent faithfully changes in assets and liabilities (ACCA 2018; EY 2018; IFRS Foundation 2018).

The final element in financial accounting relates to measurement and requires the information of financial statements to be quantified in monetary terms. The process of monetisation should consider the relevance to representing the economic resources of an entity and be guided by the qualitative characteristics of financial information. In addition, there are two ways that monetisation can be achieved: the historical cost of the transaction or the current value of the item. Current value measurement basis can be made by considering the following: fair value, value in use or current cost of an item.

Table 7.2 Key financial statements

Type of statement	*Type of information*	*Definitions of elements*
Statement of Financial Position	Reports on the financial equation in which Equity = Assets – Liabilities	Assets is "a present economic resource controlled by the entity as a result of past events" and economic resource is "a right that has the potential to produce economic benefits". Liability is "a present obligation of the entity to transfer an economic resource as a result of past events" and obligation is "a duty of responsibility that an entity has no practical ability to avoid".
Statement of Financial Performance	Recognises expenses and income	Income corresponds to "increases in assets, or decreases in liabilities, that result in increases in equity, other than those relating to contributions from holders of equity claims". Expenses represent "decreases in assets, or increases in liabilities, that result in decreases in equity, other than those relating to distributions to holders of equity claims".

Source: IFRS Foundation (2018).

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In summary, the IASB Conceptual Framework prescribes what information should be included in financial statements as well as the principles that must be applied to the financial accounting process. This creates a series of restrictions: a concentration on an individual entity, separate from its substantive environment; an emphasis on monetary expression of matters of interest; and an information created in specified formats, with a focus on the perceived desires of users. This means that the potential of financial statements to provide a "true and fair" representation of an entity's impact on the natural environment is limited. The next section describes those limitations followed by a section on how environmental matters have been incorporated into financial accounting despite these limitations.

The limits of financial accounting and reporting

Limitations of financial accounting and reporting have been discussed in the literature for more than 45 years. For example, Dieker and Preston (1977) and Benston (1982) argued that accounting information that does not include organisations' externalities (Coase 1960) so it is incomplete and creates a limited account of management actions. From this, they concluded that financial accounting has a limited role to play in communicating about corporate responsibility (Benston 1982). In addition, these authors identified issues with assigning responsibility for externalities to the entity itself and argued that this failure of financial accounting has serious consequences on organisational behaviour because it can prevent deeper political changes (Benston 1982). Chapter 16 of this handbook further considers externalities and decision-making.

Indeed, Tinker focused on the political nature of accounting, noting that the perception of its neutrality is influenced by accounting's close connection with neoclassical economics, arguing that economic reductionism is the hallmark of neoclassical economics (Tinker 1984; Tinker et al. 1982). Hines reinforced this observation and described the impact of such reductionism. Hines highlighted that accounting communicates about "things" (Hines 1988; Hines 1989) and this communication is based on a language that classifies, recognises and measures a limited array of information that might matter to organisations and stakeholders (Hines 1991b; Hines 1991a). Consequently, financial accounting cannot reflect a true, accurate and fair view of "reality": rather, it can only partially represent quantifiable reality, which ignores qualitative aspects of the world we live in (Morgan 1988; Maunders and Burritt 1991).

Moreover, Hines (1989) argued that accounting cannot provide an independent and neutral perspective of an organisation because accounting itself constructs the idea of a business. Hines further stressed that the IASB Conceptual Framework lacks a sound conceptual basis and that accounting knowledge is the result of a political process (Hines 1989). She challenged the tautology that capital is equal to assets less liabilities by questioning what is actually an asset, who defines the size of an organisation and what is exactly the boundaries of an entity. Hines also identified the arbitrariness of accounting concepts, standards and practices as a major concern with accounting (Hines 1989). Maunders and Burritt (1991) built on this point to describe the limits of financial accounting's ability to recognise ecological problems and argued that environmental issues cannot be "adapted" to the demands of financial accounting concepts. For example, they argued that conventional notions of going concern exclude environmental impacts; qualitative impacts of accruals are not communicated; notions of consistency cannot be applied to environmental issues and the impossibility of prudence to represent irreversible impacts caused by organisations. Thus, financial accounting can actually be the cause of environmental and social degradation if it is taken as the only and exclusive basis for financial and economic decisions (Maunders and Burritt 1991). Regardless, there have been numerous attempts to bring environmental concerns into the ambit of financial accounting.

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Financial accounting and environmental disclosure

The accounting profession has a track record of sponsoring research that explored how financial accounting might accommodate environmental matters. For example, the Association of Chartered Certified Accountants (ACCA) sponsored work over many years that examined, among other things, asbestos and long-tail liabilities (Moerman and van der Laan 2013), the role of small- and medium-sized enterprises in the pursuit of sustainability (Spence et al. 2012), the characteristics of organisations that pursue environmental sustainability (Barter and Bebbington 2010) and work sponsored by other accounting bodies has also addressed issues such as the valuation of assets and liabilities (Gray et al. 1998).

At the same time, the profession has created guidance as to how the natural environment would affect existing financial accounting activities. An early (and comprehensive) example of this work is that of the Canadian Institute of Chartered Accountants (1993). Another material was published by the United Nations Conference on Trade and Development (UNCTAD 1998; UNCTAD 2002) and by the Institute of Chartered Accountants of England and Wales (ICAEW 2015; ICAEW and Environmental Agency 2009). Building on these works, as well as on an extensive literature review of key journals, the following paragraphs summarise the impact of environmental issues on financial statements (see also Table 7.3).

In the context of liabilities, the literature identifies problems in measuring a liability due to the lack of a stronger and comprehensive set of financial accounting rules in this area (Collison and Slomp 2000; Larrinaga et al. 2002; Negash and Lemma 2020). In addition, the short-term focus of financial accounting standards tends to focus on environmental accruals (i.e. expenses related to the period that had not been paid) rather than liabilities that might crystallise in the more distant future (Collison and Slomp 2000; Larrinaga et al. 2002; Negash and Lemma 2020).

The impetus for recognition of environmental liabilities first arose from obligations to clean up polluted sites in the United States of America (generated by the "superfund" legislation) and how to recognise liabilities in this context has featured heavily in the literature (Bath et al. 1997; Bath and McNichols 1994; Campbell et al. 1998). Accruals for these liabilities were difficult to estimate in terms of the extent of future costs and the timing of recognition. As a result, managers were left with discretion on the disclosure of costs in this area (Bath et al. 1997; Bath and McNichols 1994). In addition, firms were reluctant to disclose information on this issue due to at least two reasons: first, it was costly to produce this information and, second, disclosure of this information could cause negative capital market responses (Bath and McNichols 1994; Campbell et al. 1998). Moreover, the literature found that regulatory influence, such as the one produced in the United States of America by the Financial Accounting Standard Board and the Security and Exchange Commission, was essential to avoid firms' discretion to recognise and disclose provisions for cleaning up superfund sites (Bath et al. 1997). Canadian regulations on disclosure of clean-up of natural sites contaminated were also found to have influenced financial reporting positively (Li and McConom 1999).

Another setting in which these problems arise is that relating to the provision for decommissioning costs, for example, in the oil and gas sector or by nuclear power plants (Gray et al. 1997; Alciatore et al. 2004). With regard to decommissioning in oil and gas sector, the literature suggests that companies do not comply fully with financial reporting standards. Rather, they disclosure the minimum required with no explanatory notes to support readers to understand the information disclosed (Abdo et al. 2018). Companies justified this approach by saying that this information is demanded by the users of financial accounting and also claim that this information can increase public scrutiny, decrease competitive advantage and generate misinterpretations (Abdo et al. 2018). These observations are reflected more broadly. For

Table 7.3 Environmental issues in financial statements

Impact on financial statements	*Accounting treatment*	*Related environmental issues*	*Examples of IFRS-related standards*
Environmental costs	They should be capitalised if meet the criteria to be recognised as an assets (e.g. increasing future economic benefits) (UNCTAD 2002, p.18). If not an asset, they should be charged to the income statement (UNCTAD 2002, p.19).	Conserving the environment, treatment of waste products, clean-up costs and auditing.	IAS 16 – Property, plant and equipment IAS 38 – Intangible assets
Recovery and impairment[3]	"When an environmental cost is recognised as an asset is related to another asset, it should be included as an integral part of that asset and not recognised separately" (UNCTAD 2002, p. 22). "Environmental cost is capitalised and included as an integral part of another asset, the combined assets should be tested for impairment and where appropriated written down to its recoverable amount" (UNCTAD 2002, p. 22).	Emissions rights, soil and water contaminated.	IAS 36 – Impairment of assets
Environmental liabilities[4]	It is the obligation of the entity to incur a future environmental cost. This obligation can be legally enforced or not and it should be disclosed in either balance sheet or notes (UNCTAD 2002, pp. 23,34).	Fines and penalties, waste disposal, clean-up superfund sites,[5] decommissioning[6] and changes in technology/ regulations.[7]	IAS 37 – Provisions, contingent liabilities and contingent assets
Recognition of recoveries	Recoveries from third parties should not be netted against environmental liabilities unless there is a legal right to set off in which case gross amount should be disclosed for both – liability and recovery (UNCTAD 2002, p. 28).	Land reinstatements.	IAS 37 – Provisions, contingent liabilities and contingent assets.
Measurement of environmental liabilities	Estimations in notes should be provided in case of uncertainty to measure environmental liabilities.	Type of hazardous substance in a site and type of technology for remediation.	IAS 37 – Provisions, contingent liabilities and contingent assets

Source: UNCTAD (1998), UNCTAD (2002), ICAEW and Environmental Agency (2009) and ICAEW (2015).

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example, environmental fines and penalties have been highlighted as having the potential to cause misinterpretation in financial statements, as they may be mixed up with costs for environmental improvements, such as research and development (Gray et al. 1997). Buccina et al. (2013) also found that financial accounting standard (e.g. US GAAP – United States Generally Accepted Accounting Principles) were not sufficiently detailed to create disclosure of the cost of litigation arising from oil spills.

In general, the transparency of environment-related disclosure is considered essential for the sound provision of financial information (ICAEW 2015; ICAEW and Environmental Agency 2009). One qualitative aspect of financial statements that can affect the financial presentation of environmental issues is relevance, more specifically those aspects that are related to materiality (ICAEW and Environmental Agency 2009). According to the IASB Conceptual Framework, information is material if its omission or mis-statement will influence decisions based on financial reports (IFRS Foundation 2018). The main issue with materiality is the fact that it should be measured according to the relevance and magnitude of a particular item in relation to each individual entity. Thus, an entity should decide on material aspects to disclose and the information can be presented in two ways: either separately or aggregated with large amounts, which approach is adopted affects the identification and transparency of environmental issues in financial statements (ICAEW 2015).

The problem arises, however, when the relevance of information can be perceived differently by reporters: as a result, the disclosure of environmental related financial information is not only a matter of technical materiality assessment but also subject of professional judgement (Laine et al. 2017) as well as regulatory scope (Senn and Spring 2020). For example, the literature suggests that non-disclosure of capital expenditures tends to be justified due to quantitative immaterial nature of such information (Patten 2005; Cho et al. 2012). Another example, from the French context, explains that decommissioning assets and liabilities are perceived by reporters as relevant financial information in terms of standards compliance because there is clear accounting guidance on how it should be treated (Senn and Spring 2020). In contrast, expenses are not perceived by reporters as useful/reliable disclosure because how these items are calculated is not specific enough and as a result it is not clear what information conveyed as "environmental expenses" actually entails (Senn and Spring 2020). Despite the (at times, seemingly) arbitrary nature of the environmental information disclosed, the authors assert that organisations dedicate resources to define accounting classifications and measurement rules (Laine et al. 2017). This is because environmental financial accounting information may not be material in quantitative terms but this information is still relevant to comply with regulations as well as to create a positive image of an organisation since financial information may represent a signal of an organisational commitment to the environment (Laine et al. 2017).

In summary, this section has provided a synthesis of the issues that arise for financial accounting, including measurement, classification and disclosure choices. These are generic issues for financial accounting. At the same time, aspects of environmental governance also create novel issues for financial accounting choices, namely, issues that arise related to climate change and financial reporting.

Novel financial accounting issues

Climate change is one of the most serious environmental issues of our generation and is considered in more detail in Chapter 26 of this handbook. In this section, two areas of particular concern that affect financial accounting are briefly highlighted: financial accounting issues emerging from of emissions rights and accounting for climate change-related risks and

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uncertainties. These issues come into play when emissions rights are gifted to organisations, rather than being paid for.

Emissions rights are given to organisations in the context of emissions trading schemes that seek to reduce greenhouse gas emissions (Bebbington and Larrinaga-Gonzalez 2008; Lovell 2014). Emissions trading works (normally) by setting a cap on an entity's emissions and then creating a market whereby organisations can decide to emit to the level they have the rights for, reduce their emissions (thereby creating emissions to sell) or exceed their emissions entitlement (and buy emissions rights in the market to cover the excess). Emissions trading gives economic value to a unit of emissions based on supply and demand and provides organisations with flexibility to set strategies according to their economic preferences. There are emissions markets operating in many countries,[1] with the European Union (EU) Emissions Trading Scheme (EU ETS) being both the first and largest emissions trading scheme in the world.

Emissions trading schemes (where rights were allocated for "free") created problems with respect to how to recognise and value those rights. As a result, in 2004, the IASB issued a guidance in this area through the International Financial Reporting Interpretation Committee 3 – Emissions right (hereafter IFRIC 3). IFRIC 3 was later withdrawn due to "accounting mismatches"[2]. Table 7.4 demonstrates that IFRIC 3 recommended that changes in the value of liabilities should be directly recognised in the income statement, in contrast to the case for changes in the value of assets (Lovell et al. 2013). Different recommendations in terms of measurements of assets and liabilities were also a concern. It was argued that these mismatches could cause value-relevant impacts on companies' financial results, if companies were operating in a volatile market (de Aguiar 2018). There is presently no standard on offer in this area and in its absence reporters have decided to recognise emissions rights in different ways, thereby compromising the comparability of financial information (PricewaterhouseCoopers – PwC and International Emissions Trading Association – IETA 2007; Lovell 2014; Lovell et al. 2013). There were several attempts to set new standards for emissions rights but with no success (de Aguiar 2018). This situation highlights the continued struggle that financial reporting has with incorporating environmental aspects in a way that reflects science/policy imperatives accurately (Ascui and Lovell 2011).

This illustration makes the case that aspects of the natural environment (even where they are subject to formal governance) still create problems in terms of financial accounting's ability to create accounts that reflect the underlying reality. This may explain why environmental matters can be found more readily in non-financial reporting formats (see also Chapter 8 of this handbook) rather than directly incorporated into financial statements. At the same time, failure to adequately account for environmental matters means that financial accounts do not show a "true and fair" view to capital market participants and other users. This is reflected in the provision of alternative sources of information, such as the Carbon Disclosure Project (CDP) and the more recent work of the Task Force on Climate-related Financial Disclosures (TCFD – see TCFD 2017b; TCFD 2017a). In particular, the TCFD has highlighted that disclosure on climate-related financial information is still insufficient to investors and that the impact of climate change on organisations is unclear, including financial impacts (TCFD 2019). This has to be an inappropriate position for the accounting profession to find itself in.

Conclusion

This chapter sought to demonstrate the issues at stake as financial accounting seeks to reflect the impacts of the natural environment on organisations. While financial accounting does (and

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Table 7.4 IFRIC 3 accounting for emissions rights summary

IFRIC 3 – Emissions rights	
IAS 38 – Intangible assets	*IAS 37 – Provisions, contingent liabilities and contingent assets*
Treatment Allowances should be treated as intangible assets to recognise emissions rights allocated free of charge or purchased.	Treatment Liability to provide allowances should be treated as a "provision" and recognised as the emissions are produced.
Measurement • "When allowances are issued to a participant by government (or government agency) for less than their fair value, the difference between the amount paid (if any) and their fair value is a government grant that is accounted for in accordance IAS 20 Accounting for Government Grants and Disclosure of Government Assistance".[a] • The "Government Grant" should initially be classified as deferred income in the statement of financial position and as income over the compliance period.	Measurement • It should be measured at market value. • Revaluation should be recognised in income statement.

[a] www.iasplus.com/en/standards/ifric/ifric3.

Source: www.iasplus.com/en/standards/ifric/ifric3 and Lovell et al. (2013).

has) reflect(ed) aspects of environmental matters, the extent and robustness of these accounts have troubled the profession, standard setters and the academia over the last 30 years. As has been demonstrated, the constraining nature of the IASB Conceptual Framework has made recognition of environmental matter problematic, given the mismatch between the rules and norms of accounting versus the nature of environmental concerns. Even where governance and/or policy "makes" the environment evident (e.g. in carbon trading schemes), accounting has found it problematic to reflect these matters in accounting rules in such a way that robust and comparable information can be provided to decision-makers/information users. Likewise, given that materiality is an overarching principle on which the provision of accounting information rests, it is often the case that environmental related information does not cross this threshold. At the same time, and given the lack of representation of environmental matters, it is not always clear that this information is immaterial. As a result, the communication of an organisation's financial position may be flawed in ways that cannot be easily discerned (see also Chapter 12 that considers financial markets and environmental information).

More theoretically informed explanations exist to explain the problem of translating environmental matters into financial accounting. In particular, Bebbington et al. (2020) examined these themes in the case of "unburnable carbon". In this case, fossil fuel reserves are reflected in the notes to the accounts as well as (partially – in terms of prior capital expenditure to identify fossil fuel reserves) in the financial statements. At the same time, it can be demonstrated that if global climate change governance evolves to a scientifically robust position, a large proportion

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of these reserves will not be combusted and hence will have little economic value (in this case a material effect will be generated). In seeking to explain why there is no current financial accounting response to this issue, Bebbington et al. (2020), drawing from Miller and Power (2013), noted that there is a problem with the functions that underpin accounting's force. In the first instance, accounting finds it difficult to create "calculative spaces" (territorialising in the language used by Miller and Power 2013) that translate environmental matters into financial matters. This problem arises from the problems of recognition identified in this chapter as well as from the tendency for disclosures to be required/regulated while the measurement and classification rules that would support such disclosures remain weak and/or absent (this is a key insight from Senn and Spring 2020). If it is impossible to create calculations, then the second element of accounting's productive force (the ability for actors to use accounting information to interact with each other – mediating) cannot be achieved. Once these impediments are in place, other roles for accounting information, namely, adjudicating (the provision of information that allows activities to be evaluated) and subjectivising (the creation of contexts in which control can be achieved) are also lost. These insights also explain why other forms of accounting for the environment have developed (especially outside of the annual report and accounts package). Regardless, the need for financial accounting information to better reflect the environmental performance of organisations still exists and is still imperfectly realised.

Notes

1 For reports on different carbon markets, see: www.ieta.org/The-Worlds-Carbon-Markets.
2 www.iasplus.com/en/news/2005/June/news2147.
3 According to ACCA, "If an asset's carrying value exceeds the amount that could be received through use or selling the asset, then the asset is impaired and the standard requires a company to make provision for the impairment loss" (www.accaglobal.com/my/en/member/discover/cpd-articles/corporate-reporting/ias36-impairment.html).
4 Provision should be recognised when: "(i) an entity has a present obligation as a result of a past event; (ii) it is probable that a transfer of economic benefits will be required to settle the obligation; and (iii) a reliable estimate can be made of the amount of the obligation" (ICAEW 2015).
5 Sites polluted, for example, contaminated with hazardous substances.
6 Decommissioning means the dismantling and disposal of facilities. In oil and gas sector, it is common decommission of offshore platforms installations and pipelines. Another example is decommissioning of nuclear power plants.
7 For example, replacement of fuel cars with electric cars due to regulation requirements.

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