


Environmental Management Accounting: The State Of Play

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ABSTRACT

Environmental management accounting (EMA) is characterised by a lack of standard taxonomy. Minimal consensus, either in terminology or definitions, has been a feature of the literature. This paper seeks to not only provide a structured overview of the extant literature on environmental management accounting, but to do so in a manner that allows the reader to better understand the key issues and concerns. The private cost approach suggests that corporate environmental outcomes should be part of the characteristic management accounting undertaken by a firm. Conversely, the external cost approach suggests that only by recognizing externalities or the non-market costs imposed on society by firms, will management accounting deliver the required level of environmental outcomes.

INTRODUCTION

 Environmental management accounting can be positioned within the broader concept of social accounting. Gray et al. (1996) suggest that social accounting or corporate social reporting (CSR) is ‘the process of communicating the social and environmental effects of organizations’ economic actions to particular interest groups...’ and as such involves ‘extending the accountability of companies beyond the provision of financial accounts to the owners of capital (particularly shareholders)...’. Social accounting and accountability, social responsibility reporting, and sustainability reporting are all terms that refer to the measurement and reporting of an organization’s social, environmental, and economic impacts (Epstein, 2004). The term ‘triple bottom line’ reflects this recognition of economic, social (including health and safety, training and education, and local community support), and environmental objectives in accounting. It is within this last sphere of accounting for the environment in which EMA is positioned.

In line with the traditional delineation between conventional management accounting and financial accounting, this paper assumes an internal audience perspective thereby allowing the debate to focus on the decision making perspective which is so very relevant to the environmental agenda. While it is acknowledged that there is a wider debate required at the global level, it is felt that the appropriate level at which to begin an overview of EMA is at the corporate level of decision making. More specifically, the internal or private costs borne by the firm are contrasted with the external social costs imposed on society by the firm.

The private cost approach or ‘conservative’ perspective suggests that corporate environmental outcomes should be part of the characteristic management accounting undertaken by a firm. It reflects the view that environmental aims and corporate aims are able to be integrated via the market mechanism as firms recognize the strategic competitive advantage and improved bottom line outcomes available from better management accounting for the environment. Furthermore, corporate strategic aims and objectives should result in the internalization of environmental costs such that improved environmental outcomes and market economy outcomes are complementary. The external cost approach or ‘critical’ perspective denies this synergy of outcomes and suggests that it is only by recognizing externalities or the non-market costs imposed on society by firms, will management accounting deliver the required level of environmental outcomes. Advocates of this approach argue that the market approach will not integrate the full extent of environmental costs and therefore will not deliver true sustainability.

CONSERVATIVE ENVIRONMENTAL MANAGEMENT ACCOUNTING

The conservative approach characterizes the mainstream literature in EMA. Fundamentally, it assumes an internal audience with the main objective being improved decision making and integration of the environment with economic outcomes at the company or corporate level. At the heart of this approach is the suggestion that for an organization, pollution equals inefficiency, not only in terms of the resources wasted (e.g. scrapped product, energy emissions) but also in terms of the non-value-added activities necessary to dispose of such waste and discharges (Porter and van der Linde, 1995). The focus in this approach is on simply extending the application of management accounting and its broad range of tools and techniques to recognize and encourage the more effective use of the organization's resources to minimize the environmental impacts borne by the firm. In doing so, this approach delivers improved environmental outcomes indirectly by demonstrating that improved business outcomes are possible when firms better account for the environment in their decision making.

The United Nations expert working group (UNSD, 2001) refer to this as 'simply doing better, more comprehensive management accounting, while wearing an "environmental hat"'. This proposes a simple change in focus to extend management accounting to include environmental costs borne by the organisation. Such a resource efficiency or resource productivity approach to corporate environmental costs has also been supported by several international governments and bodies such as the Tellus Institute and the International Federation of Accountants. Inherent in this resource productivity approach of conservative EMA is the inclusion of physical flow accounting (Physical EMA or PEMA) as well as accounting in monetary terms (Monetary EMA or MEMA) (UNSD, 2001; Burritt et al., 2002). This recognizes both the 'environmental related impact on the economic situation of companies' (MEMA) and the 'company related impacts on the environment' (PEMA) although the latter only in a more narrow corporate sense by accounting for the use, flow and fates of energy, water and materials at an organizational level.

Burritt et al. (2002) develop this further and provide a prescriptive framework for EMA that incorporates the resource productivity approach within a decision making context that allows for elements of time (future and past), timeframe (short term and long term), and the nature of the decision (routine and ad-hoc). Interestingly, this approach contrasts with earlier work in the area which recognized only the financial impacts of the environment on the company as EMA, with the physical impacts instead being referred to as 'internal ecological accounting'. Bartolomeo et al. (2000) also sought to distinguish 'energy and materials accounting' from environmental accounting. They incorporated non-financial information in their final definition of EMA albeit with a slightly narrower focus than the UNSD framework. Therefore, the recognition and inclusion of physical flow accounting into EMA and into the comprehensive framework by Burritt et al. (2002) is a clear indication of the evolution and convergence of EMA and the first sign of the emergence of a standard taxonomy in the EMA literature to date.

Much has been made of the need for EMA and why firms should separately account for the environment or 'go green' (Parker, 2000; Bennett et al., 2003; Porter and van der Linde, 1995; UNSD, 2001; IFAC, 2004; Jasch, 2003; Burritt et al., 2002). As previously indicated, the key driver for the separate recognition of internal environmental costs under the conservative approach to EMA is fundamentally that more effective and efficient use of resources and the flow-on reduction in end of pipe operations will have a positive effect on the corporate bottom line. It is suggested that uncovering the environmental impacts that are often 'hidden' in overhead under conventional management accounting will improve the quality of information available for decision making by emphasizing cost efficiency, compliance, and liability reduction (Parker, 2000). Ditz et al. (1995) argue that the increasing size and upward trend in environmental costs and their pervasiveness in an organization increase the distortions created by the conventional management approach of allocating environment related costs to overhead, especially in the areas of product mix, choice of manufacturing inputs, pollution abatement, and control.

Porter and van der Linde (1995) see such visibility of environmental related costs as an impetus for innovation as firms seek to not only reduce environmental liabilities and regulation but also to strategically 'address the root causes of pollution' by eliminating it up front. Parker (2000) emphasizes this strategic competitive advantage approach suggesting EMA can create an awareness that will lead to the identification of new business and market opportunities; a theme mirrored in the managerial and professionally focussed literature (Gibson and Martin, 2004; Jasch, 2003, Savage, 2003; Savage, 2005). Further, Burritt et al. (2002) highlight how the inclusion of both physical

and monetary aspects of environmental outcomes will ensure that managers at all levels and roles within the firm have appropriate strategic decision support. Therefore, at the heart of this approach is the integration of environmental considerations with economic issues in what is often referred to as eco-efficiency (Stone 1995, Schaltegger and Burritt 2000, Bennett et al. 2003, Gray et al. 1996, DeSimone and Popoff, 1997). Eco-efficiency focuses on what Bebbington and Gray (2001) feel is crassly described as ‘doing more with less’ or as Stephan Schmidheiny, founder of the Business Council for Sustainable Development states (cited in DeSimone and Popoff, 1997, p.xii), ‘is the business end of sustainable development’.

Given that the focus of the conservative approach to EMA is on extending the use of management accounting to private environmental costs much of the research in this area has been prescriptive in nature, investigating the use and adoption of a wide variety of strategic and broader management accounting tools in EMA, including life cycle costing, ABC, resource flow costing, and the balanced scorecard (for a comprehensive listing see Burritt, 2004; Ditz et al. 1995; Bennett and James, 1998; Kreuze and Newell, 1994; UNDSO, 2001; Bennett et al., 2003, Figge et al., 2002). However, there is limited research that critically evaluates the effectiveness of such tools in EMA and the application of such tools beyond the scope of large corporate environments, to small and medium sized enterprises and developing world context. Similarly, in contrast to the area of external environmental reporting literature, critical evaluation of the motivation for adoption is also limited. A study by Frost and Wilmshurst (2000) investigates sensitivity as a motivating factor for adoption of EMA in Australia, however the results of this study highlight that much more information is needed to allow us to identify and understand the factors associated with the widespread adoption of EMA.

CRITICAL ENVIRONMENTAL MANAGEMENT ACCOUNTING

The second viewpoint that is evident in the EMA literature reflects a wider environmental accountability and sustainability agenda in what the authors refer to as the critical perspective. From this perspective, a key criticism of the conservative EMA approach is that despite the rhetoric, the environment remains subservient to the corporate economic agenda. Milne (1996) classifies the conservative approach as ‘exploitationism’ and ‘conservationism’ as it does not question the ‘conventional neoclassical economic’ values upon which existing economic growth and corporate interests and agendas are based. In particular, it fails to address what economists refer to as ‘externalities’ and as a result, conservative EMA does nothing to address the more important social issue of natural resource scarcity and how to balance the business economic agenda with ensuring sustainability of our planet and its social and natural resources (Milne, 1996). Thus, while it may achieve the aim of putting the environment on the corporate agenda, it remains a corporate agenda not an environmental agenda.

In contrast with conservative EMA, the critical approach seeks to recognize and account for those environmental costs imposed on society by the pursuit of economic agendas (Ditz et al., 1995). It questions the validity and ethics of the pursuit of business efficiency and profitability that does not take full responsibility for the environmental and ecological damage that it causes. Considerable discussion has been generated regarding the failure of conservative EMA and an analysis of the sustainability approach for the development of EMA (Mauders and Burritt, 1991; Gray, 1992; Gray et al., 1996; Milne, 1996; Bebbington and Gray, 2001). The Brundtland Report in 1987 (cited in Stone, 1995) refers to sustainable development as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (see also Mauders and Burritt, 1991; Gray et al., 1993). Eco-justice is a term often used to refer to this consideration of sustainability and sustainable development which seeks to recognize the scale of economic activity relative to the carrying costs of the ecosystem (Bebbington and Gray, 2001; Stone, 1995). Milne (1996) refers to this approach as ‘naturalist-preservationist’ in that it seeks fair and equitable account of resources both from an intra and inter-generational perspective.

This critical EMA approach also considers the role and responsibility of accounting in furthering the sustainability agenda. Gray et al. (1996) question the theoretical underpinnings of a profession based on upholding the conventional economic wealth maximization objective and the usefulness of such a profession in supporting and furthering sustainability. Earlier consideration was also given to how accounting as a construct has a role to play in influencing the accountability of business and the integration of the economic and ecological agendas (Gray, 1992; Gray et al., 1995). Bebbington and Gray (2001) identify four ‘camps’ of literature that provide various views of the

role of accounting in the environmental agenda that range from none at all (reflecting Maunders and Burritt, 1991) to useless (conventional financial accounting), optimistic (reflecting the conservative approach EMA literature outlined above; Bennett and James, 1998; Parker 2000; Bennett et al., 2003; Porter and van der Linde, 1995; UNDSO, 2001; IFAC, 2004; Burritt et al., 2002; Stone, 1995) and problematic. This final ‘camp’ recognizes an attempt to bring sustainability to the corporate level by recognizing and accounting for man-made versus natural capital and identifying additional costs must be borne by the firm to return the environment to its original state at the beginning of the accounting period. This is also referred to as the sustainable cost calculation (Gray, 1992). However, as Milne (1996) points out, calculating such a cost still does not ensure that sustainability is achieved even if it does improve awareness of sustainability outcomes within business decision makers.

This highlights a crucial aspect of the critical EMA approach that impedes its current acceptance, adoption, and therefore legitimacy as a viable mainstream alternative: it struggles to actualize principles into procedures. Until research is able to provide practitioners with methods of incorporating the external or non-market impacts into corporate decision making critical EMA will fail to achieve the widespread adoption necessary to bring about the desired eco-justice. While it is an area that is most valuable and urgent if the global business community is ever to live within its means and achieve sustainability and preservation for future generations, it must do more than just challenge the current notion of economic growth as the driving measure of economic well-being (Stone, 1995).

For critical EMA to become anything more than a higher moral theoretical aspiration requires significant research and especially multidisciplinary research, not only into accounting techniques but also into the systems and tools necessary to support and promote this approach (Milne, 1996). Furthermore, critical EMA must address the issue of whether sustainability, in the eco-justice sense, is actually achievable at the corporate level or whether some form of national or international accounting will be required (Milne, 1996; Ditz et al., 1995; Burritt, 2004). As the case study by Bebbington and Gray (2001) highlights, a significant mindset change and potentially a change in the measurement and operationalization of corporate outcomes will be required before sustainability and concepts such as the sustainable cost calculation become a plausible alternative for furthering the environmental agenda. Some academic attention has been given to the recognition of externalities, often referred to in the environmental literature as full cost accounting, although this differs from the traditional definition of full cost accounting in conventional management accounting (Burritt, 2004). This is a starting point on the road to sustainability costing, but it appears the question remains as to whether such critical environmental considerations can and should be left to business under the current market economic environment.

If one accepts that that non-market or social costs will not be internalized by firms operating in a market economy, there appears to be a role for governments in forcing this internalisation. Porter and van der Linde (1995) refer to the need to remove the trade-off between regulation and the environment by providing a more co-operative regulatory framework. While this issue has not been the focus of discussion in this paper, it is again an aspect that will need to be addressed by supporters of critical EMA in order for such an approach to be proceduralized. The authors also believe that there may be a governance aspect that could provide an avenue of internalization of social costs for the critical perspective. If firms continue to earn profits from activities which are not sustainable in the longer-term then one can envisage that action at the strategic level of the firm must be undertaken to mitigate this risk to the shareholders and owners of capital. Failure to acknowledge this risk may provide a legal avenue for exerting pressure on firms to recognize and incorporate the full spectrum of environmental activities in their business decision making. Therefore management accounting must provide procedures for measuring and accounting for this risk.

CONCLUSION

The review of the literature presented in this paper provides a framework for of the existing EMA perspectives. The motivation for attempting such a task arose from the difficulty the authors faced in trying to understand how the diverse literature dealing with corporate social reporting, social accounting, accounting for the environment, and in particular management accounting for the environment, was related and what progress had been made. For EMA, the lack of any real standard taxonomy in more than a decade of research and the apparent differing agendas of the literature meant there was much confusion of context and it was often difficult to delineate where EMA began and ended. While such diversity ensures richness of debate it also makes it difficult to identify and measure

progress. It is also true that the environment often evokes a powerful emotional response which adds a further challenge to the pursuit of knowledge and consensus.

Therefore, this paper has sought in some manner to assist with understanding the current state of play in EMA. By providing a structure for organizing the literature, it is hoped that an overview of trends and potential areas of research are highlighted and researchers are assisted in identifying future areas of interest and development for EMA. Accounting, economics, science, and philosophy may need to come together to debate the decision making framework and changes to the role of business, government, and social agendas that will be required to ensure the achievement of sustainability in our current economic environment.

Time will play a crucial role in the convergence of both the critical and conservative perspectives. It will allow the conservative approach to firmly entrench the environment as a mainstream source of competitive advantage ensuring EMA becomes a routine part of the corporate agenda. In doing so it may also deliver a further internalising of corporate social costs driven by consumer preferences as part of that competitive advantage. Time will also allow the critical approach to better account for such social costs, providing a means by which firms can further embrace the environment as part of their competitive advantage.

The authors also question the value of the burgeoning body of literature on environmental external reporting if no attempt is made to integrate this with EMA. A targeted study of the EMA practices of firms currently engaged in external financial reporting might add depth to the triple bottom line agenda and further legitimize the importance of the EMA agenda. It is also of paramount importance that research focus on further developing an EMA framework through a comprehensive investigation of its applicability and relevance as a business tool in a wide range of decision making contexts and environments.

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