



Sustainability accounting—a brief history and conceptual framework

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Abstract

Research linking accounting to the emerging concept of sustainability surfaced in the early 1990s and has received continuing attention in academic and professional accounting literature. This paper tracks this brief history through to the release of the *Sustainability Reporting Guidelines* at the World Summit on Sustainable Development in August 2002, consolidating the various approaches into a sustainability accounting framework. The result is a comprehensive reporting model that presents an enormous challenge to business organisations, requiring a significant commitment of resources to achieve widespread implementation. Failure to meet this challenge enables business organisations to continue to avoid accountability for their continuing unsustainability. The paper concludes with a personal view as to how implementation of the sustainability accounting framework could proceed. © 2005 Elsevier Ltd. All rights reserved.

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1. Introduction

Environmental accounting and its most evolved form *sustainability accounting* (Elkington, 1993), have received continuing attention in the academic accounting literature beginning with the work of Gray in the early 1990s, through to the release of the *Sustainability Accounting Guidelines* at the World Summit on Sustainable Development in Johannesburg in August, 2002. This paper reviews and consolidates this research into a sustainability accounting framework that captures the breadth and complexity of this new form of accounting. The framework draws on the traditional financial accounting model for its structure, whilst the content of the sustainability accounting framework is derived from

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the various approaches taken by accounting researchers to link accounting to sustainability over the past 10 years.

2. A brief history of sustainability accounting

Gray is attributed with much of the conceptual development of sustainability accounting. Gray (1993) identifies three different methods of sustainability accounting

1. Sustainable cost.
2. Natural capital inventory accounting.
3. Input–output analysis.

These three methods together with *full-cost accounting* and *triple bottom line* (TBL) accounting are discussed in Sections 2.1–2.4, leading to the identification of common themes in Section 2.5 and the specification of a comprehensive sustainability accounting framework in Section 4.

2.1. Sustainable cost and full-cost accounting

Sustainable cost is the (hypothetical) cost of restoring the earth to the state it was in prior to an organisation's impact; that is

... the amount of money an organisation would have to spend at an end of an accounting period in order to place the biosphere back into the position it was at the start of the accounting period. (Gray, 1994, p. 33)

Gray draws on the accounting concept of capital maintenance, and applies it to the biosphere, recognising the need to maintain the stock of *natural* capital for future generations. A sustainable organisation would be one that maintains natural capital intact for future generations (Gray, 1994). Sustainable cost is deducted from the accounting profit (calculated using generally accepted accounting principles) to arrive at a notional level of sustainable profit or loss. Where the sustainable cost exceeds the accounting profit the degree of unsustainability is measured in monetary terms.

The practical problems of valuing external costs such as pollution have been well documented (Mathews, 1993; Pearce & Turner, 1990). Any damage to critical natural capital would, in theory, be valued at infinite cost because it is irreplaceable, leading to the conclusion that the activities of an organisation which damage critical natural capital are unsustainable (Gray, 1994). Unfortunately the science of ecology does not provide clear and unchallenged solutions to environmental problems (Holland & Petersen, 1995); whilst placing costs on a range of possible solutions to environmental problems may prove exhausting (Mathews, 1995).

Sustainable cost provides an example of using an established accounting principle, in this case *capital maintenance*, and applying it to natural rather than financial capital. Gray (1992) acknowledges the inherent dangers of accounting for natural capital within a price-driven framework, as do critical accounting theorists (Cooper, 1992; Hines, 1991; Lehman, 1996; Maunders & Burritt, 1991).

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