

ENVIRONMENTAL ACCOUNTING
—— F O R T H E ——
SUSTAINABLE CORPORATION

Strategies and Techniques

Daniel Blake Rubenstein

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Guide for Readers

The objective of this book is to demonstrate how the newly emerging field of environmental accounting *could* serve the needs of corporations aspiring to be sustainable over the coming decades. The book is then intended to provide an initial road map of what accounting *could* be, rather than describe what is actually in place today. The concepts introduced are new and necessarily of an innovative nature. The accounting systems proposed are virtually nonexistent today. Therefore, to achieve my objective, I chose to write the book in the genre of what I would call a “fictional documentary.”

In order not to mislead the reader, it is important to distinguish between fact and fiction. First, while the issues confronted by the characters are real, all the characters are fictitious. Any resemblance with living persons is purely incidental. The material in Chapters 2 through 6 is based on interviews, a review of current literature, and documentation on industry practices in the forestry sector. The material on accounting for natural capital in Chapter 7 is of my own creation, based on the observations I made about forest ecology, with the exception of the material on waste minimization. Chapters 8 and 10 are based on in-depth interviews with a leading forestry management company and reflect an enlightened industry perspective of the options for sustainable forestry management and sustainable pulp operations. The numerical data presented were based on historical data of a representative company, modified to remove any proprietary information. An attempt was made to retain basic relationships. This database of representative data for forestry operations in the northern boreal forest was used to explore unit cost variations under different forestry options. The methodology for computing the commercial value of the forest proposed in Chapter 9 was developed by an industry cost accountant. The numbers presented are deemed representative of those found in a northern boreal forest, subject to the caveats in the text.

The approach to computing the noncommercial values of the forest, intergenerational liabilities, and the risk-management principles proposed for costing natural capital are of my own invention. When doing my initial research, I was unable to find any precedent for calculating intergenerational liabilities for a living forest at the corporate level. My objective was to focus on expanding the traditional definition of an asset, then to compute some rough estimates of the value of the forest ecosystem. The focus was always on developing potential reporting formats. My work is in no way definitive but rather intended to give tangible form to some of the new concepts.

With the exception of Figure 12.1, the material in Chapter 12 was based on a case study on the sustainable development of a northern boreal forest, developed for the United Nations Conference on Trade and Development. (In the text, when I refer to the work done by the United Nations, I am referring to the final drafts of the case study I created for the United Nations between 1991 and 1993. This case study is not yet published.) Given the focus on exploring reporting formats, the fuller cost calculations are in large part for illustrative purposes. It is my hope that with future research, accountants will someday be able to compute fuller cost estimates with a much higher degree of certainty and general acceptance. Today, the methodologies proposed in this text are the first tentative steps in a long journey; at this time there are no generally accepted approaches, from a corporate accounting perspective. Chapters 13 and 14 are both original, reflecting my aspirations for where accounting could go in the coming decade.

My hope is that readers will attain an appreciation of the potential of environmental accounting and the attitudes that will be required for this emerging discipline to achieve this full potential. This book is intended to be a depiction of how accounting could help today's corporations become sustainable.

Preface

I am deeply indebted to the United Nations Conference on Trade and Development for funding the research that resulted in the model environmental accounts that are the focal point of this book. The case study presented is based on these model accounts but contains modifications developed by the author after the completion of the contract with the United Nations. Special recognition must go to the project leader, Lorraine Ruffing, whose enthusiasm kept the project moving through the shoals of bureaucracy. I am also very grateful to the Office of the Auditor General of Canada for allowing me to take the leave from work as a legislative auditor that enabled me to complete the research.

Accounting for sustainable development, as with any open-ended research project, was filled with individual encounters that in their own way shaped the final product. I am deeply indebted to member industries of the Canadian Pulp and Paper Association that participated in this project. Participating companies provided honesty, expertise in forestry management, and a deeper appreciation of the challenges of managing the diverse interests of stakeholder groups. Participating companies provided experts in cost accounting, silviculture, environmental management, and marketing without which this book would have never been possible. I would also like to acknowledge the support and loyal friendship of my colleague on this project, Gord Clifford. Many thanks to Sylvie Lepage who helped manage the typing of an overstuffed manuscript.

I would like to acknowledge the invaluable assistance provided by experts who kindly volunteered to review drafts of the book. Their attention to matters of fact and interpretation was critical, given the multidisciplinary nature of the book. Rodney Anderson, FCA, helped crystallize the sections dealing with what was wrong with traditional accounting. His insights and creativity helped shape the final product. Dr. Ole Hendrickson from Forestry

Canada helped me get the ecology down. Dr. Crandall Benson from the School of Forestry at Lakehead University helped me ensure that the sections dealing with forestry management were accurate. The carefully thought out suggestions of the reviewers were incorporated in the final draft. Dr. Eamonn Walsh of the Leonard N. Stern School of Business, New York University, provided invaluable help, as well as encouragement and insightful comments on draft manuscripts. I am indebted to Anthony Cassils and David Runnalls, formerly with the Institute for Research on Public Policy, for their help in understanding the origins of the concept of sustainable development.

Throughout the process, my family was constant in their support and interest. As always, my parents' and my sister's interest and my mother's probing questions helped focus some of the writing. From my parents I learned how to research a topic, as well as how to take the germ of an idea and through disciplined effort develop it to its fullest potential. Special thanks go to Marcy Weiner who patiently walked me through the arduous process of getting a book published. As I neared the end of the task, the support of family and, most important, my wife made the difference between a finished manuscript and an unfulfilled dream.

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Introduction

Accounting is at least 5,000 years old, depending on when a scribbled clay tablet became an artifact—a record of what one merchant owed to his neighbor in the next stall in the marketplace. Throughout this long history, the focus of accounting has been **earth. Wealth is the accumulation of goods beyond immediate human needs.** In the history of accounting for wealth, there have been three epochs.

In the period from 4000 B.C. to A.D. 1300, the record keeping aspect of accounting was dominant. Accumulation of commercial wealth required some form of control and notation. For this, accounting for individual transactions was essential. During the second epoch, from 1300 to about 1870, accounting had to adapt to the change in scale and qualitative nature of commercial enterprise. With far-flung trading empires, larger commercial ventures, and growing cadres of owners, the need for adequate record keeping grew. This second epoch can be characterized as one of systemized bookkeeping where accountants learned to deal with a much larger volume of transactions. Accountants had to develop conventions for summarizing this growing mass of data into reporting formats comprehensible to the merchant class.

The last epoch, the Age of Profits, was spurred on by the Industrial Revolution. During this period accountants saw the emergence of financial reporting as the key communications document between investors, creditors, the emerging managerial class, and others divorced from internal management but entitled to an accounting for the use of corporate funds and progress. The separation of ownership from management, with the birth of the joint stock company, created a greater need for business communications that accounting had to serve.

During these 5,000 years, there have been some common threads. Accounting values what society values. As these values change over time,

accounting changes. During the beginning of the third epoch, the thought of accruing liabilities for health care, severance pay, or pensions was inconceivable; today such accruals spiral into the billions of dollars. Throughout this history, the place of commercial enterprise, its role in society, its rights and obligations have evolved. During the medieval period, the Church forbade usury, the place of commerce was circumscribed. In the transition between the medieval period and the Industrial Revolution, the role and place of a strong new business class changed significantly. From the Industrial Revolution to today, the role of business has again changed dramatically.

The interpretation of basic accounting tenets has evolved to respond to the changing accountability contract between business and society. In response to these changes, the definition of assets, those things a business owns, and liabilities, those amounts it owes, have continued to expand in their scope and breadth. During this period there was a shift from a focus on the balance sheet (wealth accumulation) to a focus on the income statement (earnings power). It would be fair to say that in the last hundred years the definition of asset and a liability has probably changed more profoundly than in the previous 4,900 years. Some argue that this came about because reporting companies wanted earnings per share to move in smooth trend lines, rather than “bumps.” Today, assets include goodwill, deferred expenses, intellectual property, and other intangibles such as patents and licenses.

What is unique about the present is that the rate of change in society’s values and the accountability contract between business and society have continued to accelerate. Accounting is scrambling to develop new valuation techniques to correspond to newly emerging social values, for values drive valuation. This suggests that accounting is on the verge of a transformation as profound as the one that occurred between the second and third epochs, a transformation that could cause accountants to rethink 5,000 years of conventions.

Accounting will have to respond to new values that have emerged the postwar period. The first such value is the need to recognize the limits to the tools, or the technology, of the industrial era. The next value is that natural resources and the natural habitat that supports them must be conserved. Human consumption has escalated exponentially, and humans are now forced to recognize the limits and complexities of the land organism that is the source of these natural resources. As so well articulated by Aldo Leopold in *A Sand County Almanac*, “The outstanding scientific discovery of the twentieth century is not television, or radio, but rather the complexity of the land organism. Only those who know the most about it can appreciate how little is known about it.”

The third emerging value is that ownership is much more diffused than it was in the previous epoch. Title to land no longer provides exclusive, unfettered rights. The last concept is that of place, a sense of order, connectedness. This current epoch of accounting, which could be characterized as the

Age of Accounting for Other Values, will need to respond to the challenge of reflecting “nonbusiness values” (i.e., values other than making money).

There is no doubt that the ancient profession of accounting will adapt to the Age of Other Values. Its 5,000-year track record of survival and gradual adaptation suggests a resiliency and potential for adaptation. In the past three epochs of its history, however, adaptation and change were leisurely. Accountants muddled along in relative obscurity, behaving as most fellow members of their species. They reacted to the needs of their job, focusing on their own short-term requirements.

During the conversion from a postmedieval world to the new age of industry, exploration, exploitation, and plunder, certain major costs were never booked—species annihilated, indigenous peoples slaughtered, the human misery of slavery. Society recorded human chattel as assets of the plantation. Accurate record keeping was an integral part of the slave trade, branding irons, ownership records, rights to title were essential. In short, accounting, like any profession, is driven by prevailing social values.

Today, at this unique hinge of history between the Age of Profits and the Age of Other Values, accounting, if left to its own devices, would probably follow its passive, undemonstrative mode of adaptation. In five or six generations, it might be a very different beast. Yet, alas, independent assessments of the well-being of the fragile, small blue dot in a vast universe suggest that profound change must occur in less than half a generation. The swelling global population, the exponential growth in both the scale of production and the environmental impact of the technology employed, the environmental debt built up during World War II and the postwar period suggest that tomorrow was yesterday.

For the first time in accounting’s sleepy history, there is a growing recognition among accountants and nonaccountants alike that accounting, that value-free, balanced system of double entries may be sending dangerously incomplete signals to business, to consumers, to regulators, and to bankers. The imperative to reconsider 5,000 years of accounting conventions is not a passing fad. What is fundamentally different today is that human enterprise and population have expanded to the point where they have bumped up against the limits of a finite planet.

The situation today is perhaps analogous to a protracted transpolar flight. The plane and its crew have now passed the halfway point, the point of no return. A sighting of a well-known peak confirms that the inertial navigational system is sending the wrong signals. Every minute of flying time, the plane is drifting farther off course. Urgently, the navigator tries to recalibrate the system, then override the system, resorting to more primitive navigational aids. The clock is ticking; every minute of flight time the plane’s huge fan-jets consume hundreds of pounds of fuel. A leisurely search for true north is no longer an option.

Chapter 1

Charting a Middle Course

AN INDUSTRY WORRIED ABOUT ITS SUSTAINABILITY

The year 1991 was an awful year for Canada's forest industry. It was an industry cut down by red ink. Canadian forest companies had collectively lost \$2.5 billion. Five plants had closed. Canada's exports had plummeted. The price of softwood pulp, the industry's main export, had fallen dramatically. In newsprint, North America had a tremendous overcapacity as a lingering recession dampened demand, forcing some prices down by as much as 40 percent. The push for more recycled content in newsprint had forced companies to consider the idea of building new mills far from Canada's northern forests, in the "urban forests" of large recycling depots near large cities.

On top of that, there has been one of the biggest bloodlettings in corporate history. Jack Carruthers was a survivor. He had been with Blackmore and Price, a medium-sized forestry management company, for 25 years; but many of the other senior managers of the forest industry were out, replaced by new types who talked about sustainable development and stakeholder management (see Chapter 5).

THE TWIN SOLITUDES OF BUSINESS AND WILDERNESS

Jack could deal with the red ink. There had been booms and busts for as long as there had been a forest industry in Canada. It was the debate about Caramanah Valley, Clayquot Sound, South Moresby, and Red Squirrel Road, with the bitter, sometimes violent confrontations between environmental activists and loggers that was hard to manage. And every time the environmental activists were on the news, Neil Thompson, from the Coalition for a Sustainable Tomorrow, was there, talking about clear-cutting, the

devastation of the wilderness, the greed of the logging companies, and how the loggers couldn't see the forest for the trees.

When Jack was first asked to sit in the New Round Table group he was initially reluctant to be in the same room as Neil, talking face to face with one of his worst critics. The objective of the New Round Table was precisely that—to put industry and environmental activists in the same room and encourage a productive dialogue.

The moderator was supposed to arbitrate. After a few beers, Jack had let Neil have it. "Damn it Neil, what the hell do you expect of me and my company. We're struggling like hell to make money, to keep 2,500 people at work and you just won't get off my back. Every damn month it's a new demand. First it was to plant trees. We planted 35 million trees. Then you start on the perils of mono-culture. Then it was biodiversity. And now you're into genetic diversity. I don't know how the hell I can make any money, keep my people at work, and meet all your demands."

As the night wore on, Neil shot back, "You really don't give a damn about the forest. You don't give a damn about anything other than quarterly earnings. The health of the forest is a totally foreign concept. You've got this fixation that if you plant one tree for every tree you harvest, you are keeping the forest intact. You don't understand the forest is a living, breathing organism, a web of life with an infinite value, something that took ten thousand years to create—and you're chopping it down in a decade or two."

The moderator, a university professor, intervened. He focused their discussion on the Brundtland Commission Report, *Our Common Future*, which had popularized the term *sustainable development*. He explained that in his view, sustainable development was a marriage between business and the environment that allowed business to make a reasonable return *and* ensure that natural resources were preserved for future generations. Neil, Jack, and the moderator all agreed that while they put in long hours at work or research, they did it all for their children. That was their real bottom line.

In a fit of passion, Jack thumped the table and added, "I practice sustainable development. It's a black and white issue that I don't need to debate for three days with a bunch of tree huggers and academics. I'm leaving the next generation as well off as we are when it comes to forest wealth."

"Let me see if you really practice sustainable development," Neil challenged. "What are you doing about old growth stands, natural regeneration, the use of herbicides and smaller clear-cuts? Damn it, you are not practicing sustainable development. You have to reduce the size of your clear-cuts by a third. What are you doing about moose habitat and the nesting areas for blue herons and ospreys? When are you going to switch to chlorine-free paper and stop dumping toxins into the streams?"

Jack couldn't take it any more. "What are you doing, Neil, to create 2,500 jobs, to keep a whole community in Northern Ontario off the dole? You