

Chapter 2

Environmental Standardization for Sustainability

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ABSTRACT

It is axiomatic that environmental controls are expressed as environmental standards, a traditional driver of investment in pollution control. Environmental standards spur investment in green technologies that promise to stimulate sustainable business models. The institutional framework of environmental standardization is complex; a widely misunderstood political process. A variety of standardization activities have impacted environmental protection historically and are now poised for further growth as green market discipline proliferates. Environmental standardization is a unique fusion of technology design and public policy development involving various constituencies: environmentalists, technologists, legislatures, regulators, standards-setting bodies, upstream suppliers, downstream users, and society's affected communities. This chapter reviews the role of standardization activities in setting environmental constraints, in the development of green technologies, and in establishing metrics for environmental certification and monitoring. The implications of managing environmental standardization to attract financing for sustainable business models are so significant that disregarding the risks of environmental standardization imperils competitiveness.

INTRODUCTION

Generally it is recognized that environmental controls are expressed largely in environmental

standards emanating from governments (regional, national, provincial, local), from industry associations and also have been developed from private contracts. Environmental standards serve as the traditional and most forceful driver in design, development and deployment of pollution con-

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trols. Standards attract professionals and firms engaged in development and administration of environmental testing. Standards underlie the deployment of sensor networks for environmental monitoring. Standards also drive the development of attestation programs that administer environmental certifications. In the future, environmental standards are poised to spur investment by firms pursuing business models for sustainable growth and green technologies. Therefore, environmental standards lie at the heart of financing green, sustainable and environmentally-aware technologies as well as their deployment in potentially successful business models by a wide variety of firms throughout the world.

Despite the prevalence of environmental-related standards, the institutional framework for environmental standardization remains a complex and widely misunderstood political process. Standardization is a unique fusion of technology design and public policy development involving various constituencies: industrial and transportation firms, environmentalists, technology developers, legislatures, regulators, standards-setting bodies, upstream suppliers, downstream users, and the affected communities in society. International treaties and accords increasingly obligate nations to implement environmental design through pollution controls as well as establish metrics for testing, monitoring, and certification. Given the political difficulties of achieving multi-lateral consensus on detailed environmental standards through national legislative or regulatory bodies, environmental standardization will be undertaken in a wide variety of venues, both government-related and industry-related.

This chapter provides a unique perspective on the implementation of government-inspired environmental standards to drive sustainability in these varied venues, standards-setting organizations (SSO), hereinafter standards development organizations (SDO). While much of this chapter's focus is on the environmental standardization experience of the United States, the experience

of the U.S. is predicted to affect standardization in other nations and in international environmental SDOs. Therefore, examples of international standardization are also presented to illustrate the complexity of environmental standardization. The active, successful management of environmental standardization activities are essential to the development of sustainable business models in all aspects of industrial processes, transportation, green finance and third party environmental monitoring and certification. Many of these firms will operate in various nations and their products will be produced and marketed in other nations. Disregard of the risks of environmental standardization will significantly imperil the competitiveness of environmental industries because the measurement of compliance with environmental-related standards is the quintessential evaluation criteria for acceptable sustainable designs and green performance.

This chapter is organized to provide a logical development of the standardization process in general then moves to acquaint the reader with the legal and regulatory difficulties encountered by standardization, such as in the areas of anti-trust, intellectual property (IP) and democratic principles of public participation. Standardization examples from environmental fields are integrated throughout as are classic standardization precedents from other fields. Finally, the chapter concludes with a capstone discussion of emerging issues for research and practice in environmental standardization.

BACKGROUND

The industrial revolution of the nineteenth century was among the most disruptive forces in economic history (NAS 1995). The green revolution for sustainability may be similarly disruptive because both the industrial and green revolutions are transitions with similar consequences: a robust global economy was enabled largely by reduction of variety compelled by standardization

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