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The Development of Sustainability Accounting Globally

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ABSTRACT

This paper focuses primarily on the global state of development of sustainability accounting. At the same time, this article also discusses the development of sustainability accounting in the financial industry and banking sector. The development of sustainability accounting systems is influenced by the concept of sustainable development, and different regions of the world have different views on the concept of sustainability due to their different levels of political and economic development. In addition, sustainability accounting first appeared in the manufacturing industry, followed by the banking industry. Therefore, in addition to the introduction and conclusion, this paper mainly consists of four parts, namely sustainable development, sustainability accounting, comparison between Canada and other countries, and the development of sustainability accounting from manufacturing industry to banking industry.

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CHAPTER 1. INTRODUCTION

The concept of sustainability began with environmental protection. After the Second World War, with the rapid development of the global economy, the problems of resource consumption and environmental pollution caused by industrial development gradually became more prominent. To address these issues, the concept of sustainable development has gradually emerged internationally. Over time, however, the concept of sustainability has expanded to include the coordinated development of economic, social and environmental aspects.

Sustainability accounting and reporting are products of sustainable development. As people from all walks of life around the world continue to pay attention to the concept of sustainable development, companies are beginning to recognize the environmental and social impacts of their daily business activities. To document and report on their efforts and achievements in sustainable development, sustainability accounting and reporting have emerged. Compared to traditional accounting models, sustainability accounting constructs a framework that includes economic, environmental, and social factors and reflects the sustainable development of companies by measuring sustainability indicators and publishing sustainability reports. The goal of sustainability accounting is to encourage companies to shift from the pursuit of short-term profits to the creation of long-term value, to combine profit maximization with environmental protection and social benefits, and to bring about more long-term development for companies and society.

There is a close relationship between sustainability accounting and sustainability reporting. In other words, sustainability accounting is the foundation of sustainability reporting. This is mainly because only through accounting and analysis can companies obtain comprehensive data and information on their sustainable development. Sustainability reporting is an extension of sustainability accounting that presents accounting data and information to stakeholders in the form of reports. In the history of the development of sustainability accounting, the development of sustainability reporting has dominated. The research and exploration of sustainability reporting standards in different countries around the world has always been in a state of debate.

The development of sustainability accounting and reporting originated in manufacturing industries such as energy, chemicals and textiles. This is mainly because these industries can directly produce environmental pollutants. However, with the promotion of sustainability accounting, people have also begun to pay attention to industries that have an indirect relationship with environmental pollution, such as the banking industry. Banks belong to financial institutions, and when studying how banks apply sustainability accounting frameworks and publish sustainability reports, it is necessary to discuss the development of sustainable finance.

The second part introduces the history of sustainable development. Sustainable development had a transformative impact on society in the second half of the 20th century. In social change, only when people realize that their pre-change state is a threat to their own interests can they really decide to accept the change. Therefore, this section will reflect people's acceptance of sustainable development by discussing the main historical events since the 1960s. The third section will describe the redefinition and development history of accounting in the context of the concept of sustainability, mainly including the innovation of accounting frameworks and the continuous improvement of accounting reporting standards. The fourth part describes the development and reflection of Sustainability Accounting and Reporting (SAR) in some countries in Asia, Europe and North America and compares it with Canada's SAR. The fifth section will describe how the banking industry has developed in the context of sustainability accounting. At the same time, this section will also briefly introduce the development of sustainability accounting in the Canadian banking industry.

CHAPTER 2. SUSTAINABLE DEVELOPMENT

The three pillars of sustainable development are society, economy and environment. As a shared vision of the people around the world, its initial concept was proposed in 1972.[1] By 1987, the World Commission on Environment and Development had proposed a broad definition of sustainable development that referred to the use of the natural environment to meet present human needs without compromising or degrading future human survival needs.[2] In the process of proposing and improving the concept of sustainable development, many environmentalists and organizations had proposed theories and provided suggestions for the society and government at that time. For exmaple, in 1954, Harrison Brown published The Challenge of Man’s Future, which emphasized the importance of balancing population and resource quantity;[3] in 1961, the World Wildlife Fund (WWF), also known as the World Wide Fund for Nature, was founded at the headquarters of the International Union for Conservation of Nature (IUCN) in Switzerland with the mission to conserve biodiversity and promote the sustainable use of natural resources, and in later years, it expanded its influence and scope of activities worldwide, publishing a series of reports, guidelines, research and educational materials based on local conditions;[4] also, in 1968, Garret Hardin published The Tragedy of the Commons, pointing out the harm of resource

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[1] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[2] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[3] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[4] World Wildlife Fund. (2023). ABOUT US. Retrieved on December 10th, 2023, from https://www.worldwildlife.org/about

loss due to the low cost of obtaining resources for individuals and businesses.[5] However, in addition to their professional articles, many historical events that shocked the world also played a significant role.

In the 1960s, with the end of World War II and economic development, the world's population grew rapidly. At the same time, people's demands on natural resources increased. On October 5, 1948, The International Union for the Protection of Nature (The name of IUPN was officially changed to the International Union for Conservation of Nature in 1956) was established in the town of Fontainebleau, France, with the goal of using scientific knowledge and tools to protect the environment, aiming to link human behavior with natural conservation.[6] IUCN brought together governments and civil society organizations from around the world, making it the first global environmental alliance.[7] At its inception, IUCN proposed to assess the impact of human behavior on the environment, especially since the use of pesticides was severely undermining biodiversity.[8] The creation of IUCN not only promotes cooperation and resource sharing among nations around the world, but also facilitates the development of future international environmental policies.

Several attempts were made by scientists around the world to highlight the importance of protecting the environment. In 1962, Rachel Carson published "Silent Spring" in the United States.[9] This book stimulated reflection and discussion among the scientific community and the

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[5] Spiliakos, A. (February 06, 2019). Tragedy of The Commons: What It Is and 5 Examples. Retrieved on December 10th, 2023, from https://online.hbs.edu/blog/post/tragedy-of-the-commons-impact-on-sustainability-issues

[6] IUCN. (2023). Seventy-five Years of Experience. Retrieved on December 1st, 2023, from https://www.iucn.org/about-iucn/history

[7] IUCN. (2023). Seventy-five Years of Experience. Retrieved on December 1st, 2023, from https://www.iucn.org/about-iucn/history

[8] IUCN. (2023). Seventy-five Years of Experience. Retrieved on December 1st, 2023, from https://www.iucn.org/about-iucn/history

[9] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

public about the relationship between society, the economy, and the environment.[10] Carson strongly criticized the use of DDT, a persistent poison that harms the environment. In the book, she describes how pesticides, agricultural chemicals, and other synthetic pesticides, once sprayed on the land, not only kill insects, but also damage birds and other animal populations; meanwhile, as they move up the food chain, they would eventually cause serious medical problems for humans.[11] This book is not only a rebuke of human abuse of chemical pesticides, but also a complaint against some of the behaviors of the late 1950s. Carson emphasized that humans should not attempt to use chemistry to dominate nature in the name of development; at the same time, she pointed out that technological innovation and economic development cannot be based on the irreversible destruction of natural systems.[12] Carson's claims were disputed by some politicians, but there was no doubt that her article set a milestone in the development of modern environmental movements. However, due to a lack of legal support and enforcement mechanisms, the pesticide DDT was still widely used in the 1960s. In 1967, the Environmental Defense Fund was founded in the United States.[13] Its founders documented the decline of the osprey and spoke out about the dangers of DDT to the survival of large birds.[14] They proposed that the local government ban the use of DDT, but the proposal was rejected. The founders did not give up, however. They tried a method at the time, which was to represent the environment

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[10] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[11] American Chemical Society National Historic Chemical Landmarks. (October 26, 2012). Rachel Carson's Silent Spring. Retrieved on December 1st, 2023, from http://www.acs.org/content/acs/en/education/whatischemistry/landmarks/rachel-carson-silent-spring.html

[12] Griswold, E. (September 21, 2012). How 'Silent Spring' Ignited the Environmental Movement. *New York Times Magazine.* Retrieved on December 1st, 2023, from https://www.nytimes.com/2012/09/23/magazine/how-silent-spring-ignited-the-environmental-movement.html

[13] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[14] Environmental Defense Fund. (2023). Our story: How EDF got started. Retrieved on December 1st, 2023, from https://www.edf.org/about/our-history

and file lawsuits in court, allowing scientists and lawyers to work together to put pressure on the local government.[15] In 1972, through the efforts of lawyers and scientists, the U.S. government announced a nationwide ban on DDT in most areas.[16]

In 1968, the Club of Rome was founded with the concept of improving global problems, including economic, environmental, political, and social issues.[17] In 1972, they published The Limits to Growth.[18] In the book, the authors pointed out the interdependence of agricultural production, industrial development, resource consumption, pollution, and population change.[19] At the same time, the team of authors created a model that considered these five conditions as factors influencing global development, and proposed the theory that if humans do not limit their own reproductive quantity and demand for resources, they cannot achieve unlimited development in the future.[20] Also in 1972, the Club of Rome published The Blueprint for Survival, in which the authors called for the creation of a stable society; at the same time, they once again emphasized the urgency of preserving the ecosystem for life on Earth in order to avoid social collapse.[21] Undoubtedly, these works once again sparked controversies around the world, and these controversies continue to today. In addition, in 1972, the Organization for Economic Cooperation and Development (OECD) recognized and highlighted the importance of implementing the Polluter Pays Principle (PPP) to ensure that the environment is in an

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[15] Environmental Defense Fund. (2023). Our story: How EDF got started. Retrieved on December 1st, 2023, from https://www.edf.org/about/our-history
[16] Environmental Defense Fund. (2023). Our story: How EDF got started. Retrieved on December 1st, 2023, from https://www.edf.org/about/our-history
[17] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449
[18] The Club of Rome. (2023). Publications. Retrieved on December 1st, 2023, from https://www.clubofrome.org/publication/the-limits-to-growth/
[19] The Club of Rome. (2023). Publications. Retrieved on December 1st, 2023, from https://www.clubofrome.org/publication/the-limits-to-growth/
[20] The Club of Rome. (2023). Publications. Retrieved on December 1st, 2023, from https://www.clubofrome.org/publication/the-limits-to-growth/
[21] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

acceptable state and that those who pollute the environment must pay an economic price for it.[22] This principle emphasizes the importance of maintaining sustainable development from an economic perspective and is widely accepted by countries and international organizations as one of the most effective environmental policies.[23]

In 1973, Europe adopted the Environmental Action Programme, which was used by the early European Union to address pollution issues and was also the first unified European environmental policy.[24] Also in 1973, the United States enacted the Endangered Species Act to protect wildlife and marine life.[25] The enactment of this law not only provides a framework for the protection of local animals and their habitats, but also provides a foundation for the protection of flora and fauna in North America and even other parts of the world. In 1978, the AMOCO CADIZ oil spill shocked the world, resulting in the death of a large number of marine organisms and serious damage to the local marine ecosystem.[26] In addition, the cost of cleaning up the oil spill has put economic pressure on the local area. This event has prompted governments and international organizations to strengthen legislation and regulation of marine environmental protection, thus promoting the process of global ocean governance.

In 1979, the World Climate Conference was held and the concept of climate change was proposed; since then, governments and organizations around the world had recognized that

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[22] Munir, M. (January, 2013). History and Development of the Polluter Pays Principle. *SSRN Electronic Journal*. DOI: 10.2139/ssrn.2322485

[23] Munir, M. (January, 2013). History and Development of the Polluter Pays Principle. *SSRN Electronic Journal*. DOI: 10.2139/ssrn.2322485

[24] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[25] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[26] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

emissions of greenhouse gases such as carbon dioxide were a major cause of climate change.[27] These gases can increase the temperature of the earth's surface and cause various environmental problems. This realization made people realize that environmental issues were not only the responsibility of the government, but also of companies and individuals. In 1980, The World Conservation Strategy introduced the term "sustainable development" into the global policy discourse.[28]

In 1984, the International Conference on Environment and Economy was held to explore the relationship between environmental protection and economic development, to seek ways to achieve sustainable development, and ultimately to conclude that economic development and environmental protection should be mutually supportive.[29] In the same year, however, the large number of deaths in India caught the world’s attention. In early December, a toxic gas leak unprecedented in world industrial history occurred in the city of Bhopal, India, resulting in 300,000 injuries and 100,000 deaths.[30] The occurrence of this event led to widespread environmental damage, but also forced people to begin to prevent the development of the chemical industry from again causing harm to the environment and society. In 1986, an accident occurred at the Chernobyl nuclear power plant in Ukraine, resulting in a large radioactive explosion.[31] This accident caused severe radiation contamination of the surrounding areas and

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[27] World Meteorological Organization. (2023). A History of Climate Activities. Retrieved on December 10th, 2023, from https://public.wmo.int/en/bulletin/history-climate-activities
[28] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449
[29] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449
[30] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449
[31] International Atomic Energy Agency. (2023). Frequently Asked Chernobyl Questions. Retrieved on December 1st, 2023, from https://www.iaea.org/newscenter/focus/chernobyl/faqs

significantly increased the risk of cancer among the exposed population;[32] at the same time, it also forced people to think about how to use nuclear energy in a rational way, which had a positive impact on social development.

Since 1987, the concept of sustainable development has been widely promoted, and countries and international organizations around the world have developed their own responses. In 1990, the Regional Environmental Center for Central and Eastern Europe was established to address environmental problems throughout the region; also, it placed particular emphasis on involving not only governments and civil society, but also business.[33] In 1991, the Global Environment Facility was established through a joint efforts of the United Nations Environment Programme, the World Bank, and the United Nations Development Programme.[34] This facility was designed to provide developing countries with grants to support projects that contribute to the well-being of the global environment while promoting sustainable livelihoods in local communities.[35] In 1992, the United Nations Conference on Environment and Development was held in Rio de Janeiro, resulting in agreements on key initiatives such as Agenda 21, "the Convention on Biological Diversity, the Framework Convention on Climate Change, and non-binding forest principles."[36] In 1993, the United Nations Commission on Sustainable Development was established to oversee the outcomes of the United Nations Conference on

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[32] International Atomic Energy Agency. (2023). Frequently Asked Chernobyl Questions. Retrieved on December 1st, 2023, from https://www.iaea.org/newscenter/focus/chernobyl/faqs

[33] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[34] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[35] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[36] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

Environment and Development, and it aimed to strengthen international cooperation and streamline intergovernmental decision-making in the field of sustainable development.[37]

With the popularization of the concept of sustainability in various industries, many events after 1995 overlap with the content of the next section. Therefore, we will continue to talk about historical developments in the introduction to sustainability accounting.

CHAPTER 3. SUSTAINABILITY ACCOUNTING

Definition

Accounting has traditionally been communicated in a standard format for the benefit of both internal and external stakeholders.[38] Initially, the primary purpose of accounting was to disclose a company's financial condition, so the earliest form of accounting was financial accounting, in which companies formulate, collect, and compile accounting data and disseminate their operating information to external entities through the publication of financial reports.[39] The disclosed information mainly includes statements reflecting the financial and operating conditions of the company, as well as internal cash flow information, such as income statement, balance sheet, and cash flow statement. In the process of improving financial accounting, cost accounting, which reflects information on inventory value, has been constantly adjusted to the internal management of the company.[40] Meanwhile, influenced by market changes, the accounting discipline has expanded into a new field, namely management accounting, which

[37] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[38] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1

[39] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1

[40] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1

mainly helps companies deal with decision-making, control, and budgeting issues.[41] Subsequently, since the concept of sustainable development was proposed, organizations have also begun to focus on strategic development, which means balancing the relationship between company resources and market demand in the process of achieving organizational goals.[42] As a result, sustainability accounting and related reporting have become popular among companies.

Sustainability Accounting is is an important contribution made by the accounting discipline to promote sustainable development.[43] It also refers to emerging information management and accounting approaches designed to generate and deliver high-quality information.[44] It is also known as social and environmental accounting (SEA), social accounting, and environmental accounting.[45] Therefore, it can be defined as a new accounting model that incorporates environmental, social, and economic factors.[46] In the 1970s, the first wave of corporate sustainability emerged in the form of social reports published by companies in the developed world.[47] In the late 1980s, the economy experienced a surge in environmental challenges, leading to a growing trend of corporate environmental reporting.[48] For instance,

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[41] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1
[42] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1
[43] Ozili, P. K. (January, 2022). Sustainability Accounting. *SSRN Electronic Journal*. DOI: 10.2139/ssrn.3803384
[44] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1
[45] Bebbington, J. (February 11th, 2014). Accounting and sustainable development: An exploration. *Accounting, Organizations and Society.* Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.aos.2014.01.003
[46] Ozili, P. K. (January, 2022). Sustainability Accounting. *SSRN Electronic Journal*. DOI: 10.2139/ssrn.3803384
[47] Vărzaru AA. An Empirical Framework for Assessment of the Effects of Digital Technologies on Sustainability Accounting and Reporting in the European Union. Electronics. 2022; 11(22):3812. https://doi.org/10.3390/electronics11223812
[48] Vărzaru AA. An Empirical Framework for Assessment of the Effects of Digital Technologies on Sustainability Accounting and Reporting in the European Union. Electronics. 2022; 11(22):3812. https://doi.org/10.3390/electronics11223812

rising global temperatures have led to an increase in extreme weather events such as floods, droughts and hurricanes, posing significant economic risks to various industries. At the same time, the scarcity of rare metals and other resources has made the resource market unstable, and price fluctuations and the risk of supply chain disruptions have led to an increase in production costs, ultimately limiting long-term economic development.[49] Since the 1990s, the focus on social and environmental concerns has led to a significant increase in interest in sustainability accounting and reporting (SAR), particularly sustainability reporting, which has become a common research topic in the management and accounting literature.[50]

In recent years, sustainability accounting and reporting are gradually beginning to occupy an important position in the business field, but they are still relatively new disciplines. Like traditional accounting, sustainability accounting internally follows the decision-making needs of the organization's management, while externally it provides relevant, reliable, and comparable information to stakeholders.[51] Traditional accounting focuses more on the financial and economic situation of the organization, while environmental accounting focuses not only on environmental issues, but also on the environmental impacts of various economic activities within the organization.[52] However, these two accounting systems overlook the importance of society.[53]

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[49] Berthelot, S., Cormier, D., & Magnan, M. (2003). ENVIRONMENTAL DISCLOSURE RESEARCH: REVIEW AND SYNTHESIS. Journal of Accounting Literature, 22, 1-44. Retrieved from https://ledproxy2.uwindsor.ca/login?url=https://www.proquest.com/scholarly-journals/environmental-disclosure-research-review/docview/216305124/se-2

[50] Vărzaru AA. An Empirical Framework for Assessment of the Effects of Digital Technologies on Sustainability Accounting and Reporting in the European Union. Electronics. 2022; 11(22):3812. https://doi.org/10.3390/electronics11223812

[51] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability accounting: brief history and perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

[52] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability accounting: brief history and perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

[53] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability accounting: brief history and perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

From the perspective of the overall accounting system, some experts, such as Hyrslova, Beckova, and Kubankova, believed that sustainability accounting has evolved from environmental accounting, which can be traced back to traditional accounting.[54] However, so far, there is no evidence to show the sequential emergence of social accounting and environmental accounting. Environmental accounting advocates paying attention to the impact of business operations on the environment, but protecting the environment is also a manifestation of social responsibility. As a result, before the concept of sustainability accounting was promoted, environmental accounting and social accounting may not be considered as interrelated fields. However, with increasing attention to sustainability development, these two fields have gradually established close connections. Until the promotion of the concept of sustainability accounting, it provided a broader framework for previous research.

Similar to the concept of sustainable development, sustainability accounting is also influenced by the economy, environment, and society, and their interactions in the development process.[55]

History

The concepts of sustainability accounting can be traced back to the 1960s and 1970s; however, it was not until the 1990s that these terms really began to appear in the professional literature.[56] As mentioned earlier, sustainability accounting initially emerged as environmental accounting and social accounting.

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[54] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability accounting: brief history and perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997
[55] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability accounting: brief history and perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997
[56] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability accounting: brief history and perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

When it comes to social accounting, it is necessary to understand the important concept of corporate social responsibility (CSR). This concept can be traced back to ancient Roman law, when the main role of companies was to assist the government in providing basic services to the people.[57] Then, under the influence of the British royal family, in the late 18th and early 19th centuries, companies provided welfare plans for employees to increase their retention rates and sense of happiness in life.[58] By the early 20th century, corporate managers began to take on the responsibility of balancing the needs of employees and customers internally and the interests of shareholders externally.[59] This eventually led to the company taking on more and more social responsibility. However, it was not until the 1950s, after World War II, that the concept and framework of corporate social responsibility began to emerge.[60] By the 1960s, the discussion of corporate social responsibility had reached a milestone with the publication of a variety of academic literature. For example, Howard R. Bowen was one of its most influential authors. In 1953, he published Social Responsibilities of the Businessman (SRB), in which he argued that businesses should consider their impact on society when making decisions, rather than simply pursuing short-term economic gain.[61] This book laid the foundation for the future development of the academic concept of corporate social responsibility (CSR). To some extent, social

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[57] Latapí Agudelo, M.A., Jóhannsdóttir, L. & Davídsdóttir, B. A literature review of the history and evolution of corporate social responsibility. *Int J Corporate Soc Responsibility 4, 1 (2019)*. Retrieved on December 1st, 2023, from https://doi.org/10.1186/s40991-018-0039-y

[58] Latapí Agudelo, M.A., Jóhannsdóttir, L. & Davídsdóttir, B. A literature review of the history and evolution of corporate social responsibility. *Int J Corporate Soc Responsibility 4, 1 (2019)*. Retrieved on December 1st, 2023, from https://doi.org/10.1186/s40991-018-0039-y

[59] Latapí Agudelo, M.A., Jóhannsdóttir, L. & Davídsdóttir, B. A literature review of the history and evolution of corporate social responsibility. *Int J Corporate Soc Responsibility 4, 1 (2019)*. Retrieved on December 1st, 2023, from https://doi.org/10.1186/s40991-018-0039-y

[60] Latapí Agudelo, M.A., Jóhannsdóttir, L. & Davídsdóttir, B. A literature review of the history and evolution of corporate social responsibility. *Int J Corporate Soc Responsibility 4, 1 (2019)*. Retrieved on December 1st, 2023, from https://doi.org/10.1186/s40991-018-0039-y

[61] Acquier, Aurélien & Gond, Jean-Pascal & Pasquero, Jean. (2011). Rediscovering Howard R. Bowen's Legacy: The Unachieved Agenda and Continuing Relevance of Social Responsibilities of the Businessman. Business & Society - BUS SOC. 50. 607-646. 10.1177/0007650311419251.

accounting can be seen as a result of the social responsibility movement of the early 1960s.[62] At the same time, people were more concerned about the pressures of population growth and the destruction of environmental resources. For example, the publication of "Silent Spring" made people realize that excessive environmental damage could only sustain temporary economic growth and could not promote long-term sustainable development. Thus, the social issues that accountants had been studying were overwhelmed by environmental issues.[63] By 1970, the establishment of the Environmental Protection Agency (EPA) had created a new regulatory framework and additional obligations for businesses.[64] Therefore, environmental issues gradually became part of social issues. Due to the close relationship between environmental and social accounting, it is difficult to determine their order of priority.

1980s

In the 1980s, people experienced employment pressure and the impact of economic recession, resulting in the slow development of sustainability accounting. At the same time, various environmental events occurred frequently, and the public increasingly paid attention to companies whose business activities directly affected the environment.

In late 1982, the United Nations General Assembly adopted the World Charter for Nature, which pointed out that human arbitrary use of natural systems and existing imperfect economic systems would lead to the collapse of economic and social systems in the future.[65] Thus, one of the five principles requires that humans maintain the most appropriate sustainable productivity

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[62] Tilt, C. A. (January, 2010). Corporate Responsibility, Accounting and Accountants. *Professionals' Perspectives of Corporate Social Responsibility*. DOI: 10.1007/978-3-642-02630-0_2

[63] Tilt, C. A. (January, 2010). Corporate Responsibility, Accounting and Accountants. *Professionals' Perspectives of Corporate Social Responsibility*. DOI: 10.1007/978-3-642-02630-0_2

[64] Latapí Agudelo, M.A., Jóhannsdóttir, L. & Davídsdóttir, B. A literature review of the history and evolution of corporate social responsibility. *Int J Corporate Soc Responsibility 4, 1 (2019)*. Retrieved on December 1st, 2023, from https://doi.org/10.1186/s40991-018-0039-y

[65] UN General Assembly. (October 28, 1982). *World Charter for Nature*., A/RES/37/7, Retrieved on December 1st, 2023, from https://www.refworld.org/docid/3b00f22a10.html

when using ecosystems.[66] The World Charter for Nature provided an important ideological foundation for people at the time to understand and embrace sustainable development. It also emphasized the strengthening of legislation, law enforcement, monitoring and evaluation by countries and international organizations, which provides an important ethical and legal framework for the development of sustainability accounting in the future.[67]

In 1983, the World Commission on Environment and Development (WCED), chaired by Gro Harlem Brundtland, was established to promote sustainable development in countries.[68] In 1987, the World Commission on Environment and Development (WCED) published the Brundtland Report, also known as Our Common Future.[69] When the report was published, Gro Brundtland (former Prime Minister of Norway) was the chairperson of the committee, hence it was also named Brundtland Report.[70] This report clearly proposed the concept of "sustainable development" for the first time and emphasized the close link between environmental protection and economic development.[71] This report laid the groundwork for the publication of the Blueprint for a Green Economy two years later, and also sparked widespread attention and discussion on sustainable development around the world.

In 1989, British environmental economist David Pierce, Edward Barbier, and Anil Markandya published Blueprint for a Green Economy.[72] They argued that the environment

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[66] UN General Assembly. (October 28, 1982). *World Charter for Nature*., A/RES/37/7, Retrieved on December 1st, 2023, from https://www.refworld.org/docid/3b00f22a10.html
[67] UN General Assembly. (October 28, 1982). *World Charter for Nature*., A/RES/37/7, Retrieved on December 1st, 2023, from https://www.refworld.org/docid/3b00f22a10.html
[68] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449
[69] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449
[70] United Nations. (2023). 1987: Brundtland Report. Retrieved on December 1st, 2023, from https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html
[71] Bebbington, J. (February 11th, 2014). Accounting and sustainable development: An exploration. *Accounting, Organizations and Society*. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.aos.2014.01.003
[72] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

played a central role in economic development and showed how to calculate the costs of harmful environmental factors and resource depleting activities.[73] In an era of uncertain sustainable development economics, this book proposes and describes the concept of green economy, points out the importance of reducing environmental risks and ecological scarcity, and plays an important role in advocating for the establishment of a sustainable economy; moreover, it provided an important theoretical basis for the Greening of Accountancy published next year.[74]

1990s

In 1991, Gray R.[75] founded the Centre for Social and Environmental Accounting Research (CSEAR) and served as its director for 21 years.[76] Throughout his life, he has been dedicated to the development of social responsibility, environmental and sustainability accounting and has published more than 300 articles on these subjects.[77] When sustainability accounting was still in its infancy, Gray pointed out the four elements that currently influence accounting and reporting. The first is the organization, which is the subject of accounting, the second is economic events, which refers to the financial impact of an organization's business activities, the third is the financial description, which is also the process of cash flow changes, and the fourth is the users of information, namely those stakeholders who are concerned with the operation of the organization.[78]

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[73] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[74] Bebbington, J. (February 11th, 2014). Accounting and sustainable development: An exploration. *Accounting, Organizations and Society*. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.aos.2014.01.003

[75] Gray, Robert (1952-2020) is an Emeritus Professor at the University of St. Andrews in Scotland, specializing in social and environmental accounting.

[76] ResearchGate. (2023). Rob Gray. Retrieved on December 1st, 2023, from https://www.researchgate.net/profile/Rob-Gray-8

[77] ResearchGate. (2023). Rob Gray. Retrieved on December 1st, 2023, from https://www.researchgate.net/profile/Rob-Gray-8

[78] Gray. R. H. (1994). Corporate Reporting for Sustainable Development: Accounting for Sustainability in 2000AD. *Environmental Values*, Vol. 3, No. 1 (SPRING 1994), pp. 17-45 (29 pages). Retrieved on December 1st, 2023, from https://www.jstor.org/stable/30301373

Furthermore, sustainability accounting and reporting are inextricably linked. In the 1990s, the concept of sustainability accounting began to take shape, but there were still problems with the corporate reporting framework. Firstly, corporate reporting focuses only on financial interests and neglects comprehensive disclosure of environmental and social impacts.[79] Secondly, due to the lack of mandatory requirements and laws by regulatory authorities, companies may hide some negative information in their reports, thereby affecting stakeholders' understanding of their true situation.[80] In addition, in most cases, financial markets focus only on financial data and pay insufficient attention to environmental data, making it difficult to effectively evaluate the sustainability performance of companies.[81]

In 1990, Gray published "Greening of Accounting: The Professional After Pearce". He advocated that any accounting issues and financial decisions should include environmental impacts.[82] This is mainly because the measurement of environmental costs, the evaluation of environmental liabilities, and the disclosure of environmental information are increasingly becoming the focus of attention for enterprises and investors. At the same time, this book provided a framework for sustainable practices for accountants at the time, encouraging them to develop new accounting skills and knowledge.[83] The author's advocacy has driven the

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[79] Gray. R. H. (1994). Corporate Reporting for Sustainable Development: Accounting for Sustainability in 2000AD. *Environmental Values*, Vol. 3, No. 1 (SPRING 1994), pp. 17-45 (29 pages). Retrieved on December 1st, 2023, from https://www.jstor.org/stable/30301373

[80] Gray. R. H. (1994). Corporate Reporting for Sustainable Development: Accounting for Sustainability in 2000AD. *Environmental Values*, Vol. 3, No. 1 (SPRING 1994), pp. 17-45 (29 pages). Retrieved on December 1st, 2023, from https://www.jstor.org/stable/30301373

[81] Gray. R. H. (1994). Corporate Reporting for Sustainable Development: Accounting for Sustainability in 2000AD. *Environmental Values*, Vol. 3, No. 1 (SPRING 1994), pp. 17-45 (29 pages). Retrieved on December 1st, 2023, from https://www.jstor.org/stable/30301373

[82] Gray, R. (November, 1990). The Greening of Accountancy: The Profession After Pearce. Published by ACCA. Retrieved on December 1st, 2023, from https://www.researchgate.net/publication/329220785_The_Greening_of_Accountancy_The_Profession_After_Pearce

[83] Gray, R. (November, 1990). The Greening of Accountancy: The Profession After Pearce. Published by ACCA. Retrieved on December 1st, 2023, from https://www.researchgate.net/publication/329220785_The_Greening_of_Accountancy_The_Profession_After_Pearce

development of sustainability accounting. In 1991, Gray outlined three methods for sustainability accounting, which included sustainable costs, natural capital inventory accounting, and input-output analysis.[84] In 1994, Gray described the concepts of these three methods in an article studying sustainability reports. The sustainable cost method refers to the costs required by an organization to restore an ecosystem during each accounting period.[85] The inventory method involves identifying, recording, and monitoring different categories of natural capital and their losses and/or gains.[86] The resource flow / input-output method attempts to account for the mobility of the organization's resources.[87] However, these accounting methods lacked experimental and theoretical support at the time, and their feasibility remained to be verified.

In 1999, Elkington proposed the Triple Bottom Line (TBL) based on the basic definition of sustainable development.[88] As a new framework of sustainability accounting, TBL is mainly used to document the economic, environmental, and social impacts of enterprises.[89] At the same time, TBL can also be classified as 3P, namely people, profit, and planets.[90] Profit represents the creation of value for shareholders and the maximization of a company's financial performance; also, people refers to a company's social impact on stakeholders and society, including its

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[84] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

[85] Gray. R. H. (1994). Corporate Reporting for Sustainable Development: Accounting for Sustainability in 2000AD. *Environmental Values*, Vol. 3, No. 1 (SPRING 1994), pp. 17-45 (29 pages). Retrieved on December 1st, 2023, from https://www.jstor.org/stable/30301373

[86] Gray. R. H. (1994). Corporate Reporting for Sustainable Development: Accounting for Sustainability in 2000AD. *Environmental Values*, Vol. 3, No. 1 (SPRING 1994), pp. 17-45 (29 pages). Retrieved on December 1st, 2023, from https://www.jstor.org/stable/30301373

[87] Gray. R. H. (1994). Corporate Reporting for Sustainable Development: Accounting for Sustainability in 2000AD. *Environmental Values*, Vol. 3, No. 1 (SPRING 1994), pp. 17-45 (29 pages). Retrieved on December 1st, 2023, from https://www.jstor.org/stable/30301373

[88] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

[89] Slaper, T. F. & Hall, T. J. The Triple Bottom Line: What Is It and How Does It Work? Pubilished by IBR Spring 2011 | Volume 86, No. 1. Retrieved on December 1st, 2023, from https://www.ibrc.indiana.edu/ibr/2011/spring/article2.html

[90] Miller, K. (December 08, 2020). The Triple Bottom Line: What It Is & Why It's Important. Retrieved on December 1st, 2023, from https://online.hbs.edu/blog/post/what-is-the-triple-bottom-line

contribution to people's well-being and interests, with an emphasis on creating value for all stakeholders, not just shareholders; furthermore, planet refers to a company's commitment to sustainable development and environmental protection, including reducing its carbon footprint, protecting the environment, and promoting sustainable development practices.[91]

2000s

Geoff Lamberton[92] published "Sustainability Accounting – A Brief History and Conceptual Framework" in 2005.[93] This report described the history of sustainability accounting from the late 20th century to the early 21st century and has been extensively cited in subsequent literature. Lamberton identified five key themes that provide the basic framework for accounting systems.[94] First, the foundation of this framework is to define sustainability; second, organizations should have clear indicators to measure sustainability; third, people should choose appropriate units to evaluate economic, environmental and social impacts; fourth, achieving sustainability accounting requires collaboration between accounting disciplines and other disciplines such as sociology and ecology to ensure its interdisciplinary nature; finally, applying sustainability accounting does not mean abandoning the core and fundamental principles of traditional accounting.[95]

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[91] Miller, K. (December 08, 2020). The Triple Bottom Line: What It Is & Why It's Important. Retrieved on December 1st, 2023, from https://online.hbs.edu/blog/post/what-is-the-triple-bottom-line

[92] Lamberton, Geoff is a professor in Southern Cross University, Australia. He works on green economics, environmental economics, and sustainability accounting.

[93] Lamberton, G. (January 21, 2005). Sustainability accounting—a brief history and conceptual framework. *Accounting Forum*, Volume 29, Issue 1, 2005, Pages 7-26, ISSN 0155-9982. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.accfor.2004.11.001.

[94] Lamberton, G. (January 21, 2005). Sustainability accounting—a brief history and conceptual framework. *Accounting Forum*, Volume 29, Issue 1, 2005, Pages 7-26, ISSN 0155-9982. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.accfor.2004.11.001.

[95] Lamberton, G. (January 21, 2005). Sustainability accounting—a brief history and conceptual framework. *Accounting Forum*, Volume 29, Issue 1, 2005, Pages 7-26, ISSN 0155-9982. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.accfor.2004.11.001.

At the same time, by comparing models of traditional accounting and sustainability accounting, Lamberton developed the five necessary components of sustainability accounting,[96] including:

- Objectives: To measure sustainable development performance, provide decision-support information, demonstrate transparency and comparability of accounting information, and establish measurable sustainable development targets;
- Principles: Determine the definition and scope of sustainability, clarify entity boundaries, define boundaries, develop period assessments, adopt appropriate measurement units, maintain capital, and prevent ecological risks;
- Data acquisition and measurement techniques: Using scientific models to capture data from the environment, actively facing lifecycle analysis challenges, evaluating data quality issues, carefully recording major data, and using low-cost sampling methods;
- Reporting: Compare actual and predicted values in the performance indicator table, classify natural capital stock inventory, estimate sustainable alternative cost, analyze input and output, analyze life cycle, list events that do not comply with relevant legislation, describe environmental and social impacts;
- Qualitative attributes of information: completeness, relevance, sustainability context, accuracy, neutrality, comparability, clarify, and timeliness (Same to the traditional accounting).[97]

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[96] Lamberton, G. (January 21, 2005). Sustainability accounting—a brief history and conceptual framework. *Accounting Forum*, Volume 29, Issue 1, 2005, Pages 7-26, ISSN 0155-9982. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.accfor.2004.11.001.

[97] Lamberton, G. (January 21, 2005). Sustainability accounting—a brief history and conceptual framework. *Accounting Forum*, Volume 29, Issue 1, 2005, Pages 7-26, ISSN 0155-9982. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.accfor.2004.11.001.

Until 2007, some experts were still debating whether there are differences between environmental and social accounting and sustainability accounting. On the one hand, some people believed that the activities involved in social and environmental accounting may become a prerequisite framework for sustainability accounting, although they are not sure whether these ideas will exist in the future.[98] On the other hand, people led by Gray believed that if social and environmental accounting was truly transformed into sustainability accounting, the scope and standards of the accounting field would reach a new level.[99] Through discussions on the importance of positioning different perspectives, the scope of stakeholders, the main areas of concern, and the use of theoretical frameworks, it was ultimately concluded that there is some overlap between social and environmental accounting and sustainability accounting.[100] However, it is precisely these overlaps that make it easier for modern people to accept and understand the concept and necessity of sustainability accounting.

In 2005, the Czech Republic surveyed data from organizations that had implemented an environmental management system (EMS), including 222 organizations, of which 56% of respondents indicated compliance with the concept of environmental accounting.[101] However, there were still some academic issues, such as the relationship between accounting and reporting. To enable organizations to successfully apply and promote the concept of sustainability, the Czech Ministry of Environment proposed a set of sustainability accounting methodologies in

[98] Bebbington, J. (February 11th, 2014). Accounting and sustainable development: An exploration. *Accounting, Organizations and Society*. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.aos.2014.01.003
[99] Bebbington, J. (February 11th, 2014). Accounting and sustainable development: An exploration. *Accounting, Organizations and Society*. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.aos.2014.01.003
[100] Bebbington, J. (February 11th, 2014). Accounting and sustainable development: An exploration. *Accounting, Organizations and Society*. Retrieved on December 1st, 2023, from https://doi.org/10.1016/j.aos.2014.01.003
[101] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

2009.[102] This framework clarified the definition of sustainability accounting, described the objectives of the system, and outlined the benefits to the company; at the same time, this system has also redefined and differentiated between sustainable development and corporate sustainability, addressed the relationship between accounting and reporting, and reintegrated the three pillars of sustainable development.[103] The development process and research of the Czech Republic in the field of sustainability accounting is a reference for the European Union and also provides experience for other member states in promoting changes in the development of sustainability accounting.

2010s

In 2011, the Sustainability Accounting Standards Board (SASB), a non-profit organization, was established by the Sustainability Accounting Standards Board Foundation.[104] SASB is committed to creating and maintaining industry-specific standards to help companies disclose sustainable development information that has a material financial impact and is useful to investors in their decision-making.[105] The SASB Foundation is responsible for appointing board members and overseeing, managing, funding, and monitoring the SASB standard-setting process, while the independent committee is also responsible for ensuring the “due process, outcomes, and adoption of SASB standards.”[106] SASB’s sustainability accounting standards cover key areas, including the "environment, human capital, social capital, leadership and governance, and

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[102] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

[103] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

[104] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a better understanding of sustainability accounting and management research and teaching in north america: A look at the community. Sustainability Accounting, Management and Policy Journal, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311

[105] SASB STANDARDS. (2023). Governance archive. Retrieved on December 10th, 2023, from https://sasb.org/about/governance-archive/

[106] SASB STANDARDS. (2023). Governance archive. Retrieved on December 10th, 2023, from https://sasb.org/about/governance-archive/

business models and innovation."[107] These standards are industry-specific and provide investors with important information about the company's performance in these key areas. The SASB emphasizes the importance of sustainability indicators, which must include accurate descriptions of material factors to ensure comparability, accuracy, and completeness of data.[108]

As the idea of sustainable development becomes more widespread, people are increasingly concerned about environmental and social responsibility, but management's goal is still to provide maximum economic benefit to shareholders. Numerous companies are embracing a triple bottom line framework in their reports to showcase their commitment to sustainable business practices, aiming to demonstrate to stakeholders their ability for achieving enhanced economic returns.[109] As mentioned earlier, sustainability accounting expands the boundaries of traditional accounting to include environmental costs, social responsibilities, and economic benefits. In 2013, Tomasz Gabrusewicz[110] proposed the concept of "monetizing the environment and generating, analyzing, and using socially relevant information to improve the environmental, social, and economic performance of companies."[111] This method divides sustainability accounting into two parts, namely "sustainable financial accounting" and "sustainable

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[107] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a better understanding of sustainability accounting and management research and teaching in north america: A look at the community. Sustainability Accounting, Management and Policy Journal, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[108] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a better understanding of sustainability accounting and management research and teaching in north america: A look at the community. Sustainability Accounting, Management and Policy Journal, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[109] Gabrusewicz, T. (2013). Sustainability accounting – definition and trends. Published by *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu* 302:37-46. Retrieved on December 1st, 2023, from https://www.ceeol.com/search/article-detail?id=29064
[110] He is an Assistant Professor in Poznan University of Economics And Business.
[111] Gabrusewicz, T. (2013). Sustainability accounting – definition and trends. Published by *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu* 302:37-46. Retrieved on December 1st, 2023, from https://www.ceeol.com/search/article-detail?id=29064

management accounting". Also, according to his definition, sustainable financial accounting refers to the focus on monetized data.[112]

2020s

On November 3, 2021, the International Financial Reporting Standards Foundation announced the establishment of the International Sustainable Development Standards Board (ISSB), which aims to establish a high-quality and inclusive global standard for sustainability disclosure, with a special focus on meeting the requirements of investors and financial markets.[113] The ISSB is based on market-driven and investor-focused reporting initiatives, including industry-specific SASB standards.[114] The main objectives of the ISSB are to provide sustainable development information to investors and to enable companies to publish sustainability reports for global markets.[115] The ISSB has promoted the development of a globally standardized reporting framework, which has had a positive impact on companies operating in different jurisdictions, helping them to reduce the burden of complying with multiple and potentially conflicting reporting requirements. As a result, the establishment of the ISSB has had a significant impact on sustainability accounting and reporting.

Future Trends

In the 21st century, sustainability accounting is still in the research stage, but its development will inevitably be influenced by the following three aspects. Firstly, with the continuous development of technology, data collection and analysis tools will become more

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[112] Gabrusewicz, T. (2013). Sustainability accounting – definition and trends. Published by *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu* 302:37-46. Retrieved on December 1st, 2023, from https://www.ceeol.com/search/article-detail?id=29064
[113] IFRS. (2023). International Sustainability Standards Board. Retrieved on December 10th, 2023, from https://www.ifrs.org/groups/international-sustainability-standards-board/
[114] IFRS. (2023). International Sustainability Standards Board. Retrieved on December 10th, 2023, from https://www.ifrs.org/groups/international-sustainability-standards-board/
[115] IFRS. (2023). International Sustainability Standards Board. Retrieved on December 10th, 2023, from https://www.ifrs.org/groups/international-sustainability-standards-board/

powerful. This will enable organizations to collect and analyze environmental and social data more effectively, providing more information sources and resources for sustainability accounting.

Secondly, global cooperation will be strengthened to develop consistent sustainability reporting standards and guidelines. Industry, organizations, and international standard-setting bodies can lead this process to ensure that the sustainability accounting practices of different organizations are more aligned with their goals and principles.[116]

Finally, investors' emphasis on environmental, social, and corporate governance (ESG) factors will drive more companies to adopt sustainability accounting practices. In recent years, under public pressure, more and more investors have incorporated sustainability considerations into their investment decision-making processes, ultimately forcing companies to pay more attention to the accuracy and transparency of sustainability reports.

Sustainability Reporting

Sustainability reporting is a new, formalized way of communicating information about a company's sustainability.[117] As an information system, accounting provides stakeholders with information about a company's financial position and performance to help them make decisions and manage resources. Traditionally, the focus of the accounting discipline has been on describing and measuring economic activity in the context of financial reporting. In recent years, however, there has been a major shift in the role of accounting. As people and companies worldwide recognize the importance of environmental, social, and governance (ESG) factors,

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[116] Gray. R. H. (1994). Corporate Reporting for Sustainable Development: Accounting for Sustainability in 2000AD. *Environmental Values*, Vol. 3, No. 1 (SPRING 1994), pp. 17-45 (29 pages). Retrieved on December 1st, 2023, from https://www.jstor.org/stable/30301373

[117] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1

accounting has emerged as a critical tool for capturing, measuring, and communicating an organization's impact on these non-financial aspects. Sustainability reporting goes beyond purely economic considerations to include social responsibility and environmental stewardship, and as a result, sustainability reporting has gradually been adopted by companies in this evolution, expanding the traditional functions of accounting. Sustainability accounting and reporting are often considered to be integrated. This is mainly because if the report does not contain data information, then the report has no meaning for stakeholders.[118] Also, if the company does not provide a sustainability report, all business activities and development status related to the company's sustainability may be considered virtual, and thus unable to achieve the company's sustainable development.[119]

Sustainability reporting can be seen as the process by which companies provide information to stakeholders about their economic, environmental, and social impacts.[120] The scope of financial reporting extends beyond financial statements and accounting products. A company's survival no longer depends on maximizing economic profit but should more broadly include managing the risks of long-term activities on society and the environment, thereby demonstrating its social responsibility.[121] Through the use of accounting principles and tools, organizations can systematically collect and report information about their sustainability, thereby

[118] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1

[119] Schaltegger, S., Bennett, M., and Burritt, R. L. (January, 2006). Sustainability Accounting and Reporting: Development, Linkages and Reflection. An Introduction. *Sustainability Accounting and Reporting*. DOI: 10.1007/978-1-4020-4974-3_1

[120] Filipiak, B. A. & Dylewski, M. (2021). Sustainable Financial Reporting in The Context of Ensuring Sustainability of Financial Systems. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 220-251. Published by London : Routledge. ISBN : 9780367693824

[121] Filipiak, B. A. & Dylewski, M. (2021). Sustainable Financial Reporting in The Context of Ensuring Sustainability of Financial Systems. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 220-251. Published by London : Routledge. ISBN : 9780367693824

contributing to the sustainable development of the company. In addition, this information can help companies assess long-term prospects, predict potential market risks, and develop more comprehensive investment recommendations.

Sustainability reports can be traced back to the 1960s. Initially, these reports provided non-financial information to the outside world, focusing on the impact of certain business activities on the environment and society.[122] They are primarily used to meet the demands of stakeholders, thereby increasing the organization's sense of social responsibility and enhancing the brand's reputation. The initial efforts in social reporting commenced in the Netherlands and France, serving as a foundation for the integration of environmental reporting in countries such as Germany, Austria, and Switzerland.[123]

In the 1980s, a practice known as "negative screening" emerged and was adopted by mutual funds in both the United Kingdom and the United States. This approach was incorporated into the investment decision-making process, taking into account an organization's social performance and adherence to ethical standards in addition to economic factors.[124] After the 1990s, there was a remarkable search for new indicators to assess business performance and determine the value of a company, including both financial and non-financial metrics.[125] The idea of financial indicators stems from the presentation of financial and accounting data in financial reports.[126] International Financial Reporting Standards (IFRS) regulate the quality characteristics

[122] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997
[123] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997
[124] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997
[125] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997
[126] Cheba, K. & Bąk, I. (2021). ESG Risk as a New Challenge for Financial Markets. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 34-49. Published by London : Routledge. ISBN : 9780367693824

of non-financial information included in financial reports to ensure that the information is understandable, relevant, reliable and comparable.[127] At the same time, they emphasize the characteristics of relevance and faithful representation.[128]

A significant moment in the development of sustainability reporting occurred in 1997, marked by the establishment of the Global Reporting Initiative (GRI) through a collaboration between the Coalition for Environmentally Responsible Economies (CERES) and the United Nations Environment Program (UNEP).[129] The goal of the GRI was to create reporting criteria that integrated the economic, environmental, and social activities of organizations, in accordance with the principles of Triple Bottom Line (TBL) accounting.[130]

In recent years, as environmental awareness and social responsibility have grown, an increasing number of organizations have begun to pay attention to sustainability reporting. However, a controversial issue has also sparked widespread discussion about whether sustainable reporting should be optional or mandatory.[131] Proponents of this view believe that growing global social and environmental problems demand greater corporate responsibility, and that mandatory sustainability reporting can promote greater corporate transparency and accountability; for example, governments in China, Malaysia, South Africa, and Denmarkhave

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[127] Cheba, K. & Bąk, I. (2021). ESG Risk as a New Challenge for Financial Markets. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 34-49. Published by London : Routledge. ISBN : 9780367693824

[128] Cheba, K. & Bąk, I. (2021). ESG Risk as a New Challenge for Financial Markets. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 34-49. Published by London : Routledge. ISBN : 9780367693824

[129] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

[130] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

[131] Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997

already mandated sustainability reporting.[132] As investors and stakeholders increasingly focus on a company's future prospects, mandatory reporting can also provide more information on a company's long-term sustainability, helping investors to make more informed decisions.[133] However, opponents argue that mandatory reporting can increase the burden on companies, especially small and medium-sized enterprises, and companies may face additional cost and resource pressures to meet these requirements, which may affect their normal operations.[134] In addition, some believe that mandatory reporting may lead to excessive regulation and bureaucracy without necessarily improving the sustainability performance of the company.[135]

In 2011, Harvard Business School published a set of assumptions and practices related to the mandatory nature of sustainability reporting. However, in the reports, the authors also pointed out that although mandatory sustainability reporting can encourage companies to improve their ESG disclosure and have a positive impact, this requirement may face some challenges and limitations.[136] This is mainly because specific research findings are based on specific situations and research designs and therefore cannot be easily generalized to all situations; in addition, companies in different industries may need more time and resources to

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[132] Ioannou, I. & Serafeim, G. (May 1, 2017). The Consequences of Mandatory Corporate Sustainability Reporting. *Harvard Business School Research Working Paper* No. 11-100, Available at SSRN: https://ssrn.com/abstract=1799589

[133] Ioannou, I. & Serafeim, G. (May 1, 2017). The Consequences of Mandatory Corporate Sustainability Reporting. *Harvard Business School Research Working Paper* No. 11-100, Available at SSRN: https://ssrn.com/abstract=1799589

[134] Ioannou, I. & Serafeim, G. (May 1, 2017). The Consequences of Mandatory Corporate Sustainability Reporting. *Harvard Business School Research Working Paper* No. 11-100, Available at SSRN: https://ssrn.com/abstract=1799589

[135] Ioannou, I. & Serafeim, G. (May 1, 2017). The Consequences of Mandatory Corporate Sustainability Reporting. *Harvard Business School Research Working Paper* No. 11-100, Available at SSRN: https://ssrn.com/abstract=1799589

[136] Ioannou, I. & Serafeim, G. (May 1, 2017). The Consequences of Mandatory Corporate Sustainability Reporting. *Harvard Business School Research Working Paper* No. 11-100, Available at SSRN: https://ssrn.com/abstract=1799589

adapt and implement mandatory sustainability reporting requirements.[137] This is because different companies may face different levels of difficulty in implementing these requirements due to differences in size and industry, as well as differences in resources and capabilities. Therefore, in order to ensure that mandatory sustainability reporting can have the greatest positive impact on all parties, the government and regulators need to closely examine the local situation and ensure that the regulations put in place can effectively promote the company's sustainability practices.[138] Meanwhile, for small and medium-sized enterprises, the government should also provide appropriate support and guidance to ensure effective implementation.

CHAPTER 4. CANADA VS. OTHER COUNTRIES

North America

The origins of North American thinking on the relationship between environmental protection, social responsibility and economic development can be traced back to the mid-20th century. Influenced by various European countries, the concept of sustainable development has been further expanded and deepened in North America. Especially after the 1970s, North America began to introduce a series of policies aimed at balancing economic growth, environmental protection, and social responsibility, and gradually incorporated the concept of sustainable development into its development strategy and decision-making framework.[139] A great deal of research has been carried out in North America on sustainable development, sustainability accounting and management. However, these countries face different degrees of

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[137] Ioannou, I. & Serafeim, G. (May 1, 2017). The Consequences of Mandatory Corporate Sustainability Reporting. *Harvard Business School Research Working Paper* No. 11-100, Available at SSRN: https://ssrn.com/abstract=1799589
[138] Ioannou, I. & Serafeim, G. (May 1, 2017). The Consequences of Mandatory Corporate Sustainability Reporting. *Harvard Business School Research Working Paper* No. 11-100, Available at SSRN: https://ssrn.com/abstract=1799589
[139] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

challenges in the process of sustainable development. For example, the United States faces tensions between government and society, especially with opposing views on environmental and social issues; Canada is pursuing its own development path in many aspects while keeping pace with some states in the United States; however, Mexico faces large-scale immigration and border issues that make it difficult for local governments to balance social, economic, and environmental relationships in the short term.[140] These backgrounds foster unique research and practice in sustainable development accounting and management.

Canada

In Canada, the history of sustainable development can be traced back to the report "Canadian Natural Resources Policy Issues" published by the Canadian Science Council in 1973.[141] This report marked the transformation of Canada's identity in the international community, from a consumer society focused on resource development to a more protective society. In the following decades, the Canadian government actively participated in several global conferences and signed several international agreements, such as the Kyoto Protocol in 1998, the Copenhagen Accord in 2009, and the Agenda 2030 in 2015.[142] Furthermore, Canada has launched its own initiatives, such as the Federal Sustainable Development Strategy.[143] With increasing global attention on corporate social responsibility and sustainable operations, Canadian companies and financial institutions are beginning to recognize the importance of integrating sustainable development into their business models.

[140] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[141] Charles H. C., Bohr, K. & Cho, T. J. etc. (September 21, 2020). Advancing Sustainability Reporting in Canada: 2019 Report on Progress. Retrieved on December 10th, 2023, from https://doi.org/10.1111/1911-3838.12232
[142] Charles H. C., Bohr, K. & Cho, T. J. etc. (September 21, 2020). Advancing Sustainability Reporting in Canada: 2019 Report on Progress. Retrieved on December 10th, 2023, from https://doi.org/10.1111/1911-3838.12232
[143] Charles H. C., Bohr, K. & Cho, T. J. etc. (September 21, 2020). Advancing Sustainability Reporting in Canada: 2019 Report on Progress. Retrieved on December 10th, 2023, from https://doi.org/10.1111/1911-3838.12232

As the concept of sustainable development gradually enters the practice of traditional accounting, sustainability accounting is widely recognized as one of the important issues that managers and accountants need to address.[144] The various policies of the Canadian government and regulators have gradually made the private sector aware of the importance of sustainable development and have led to positive changes over the past thirty years, including strengthening environmental management, promoting the standardization of sustainable development reporting, and adopting ESG (Environmental, Social, and Governance) reporting practices.[145]

One of the main characteristics of the development of sustainability accounting in Canada is the desire and commitment of the academic community to change the world, as well as the active investment of many Canadian institutions in sustainable development research and education.[146] This enthusiasm reflects society's increasing demand for solutions to environmental and social problems, as well as the emphasis on corporate social responsibility. However, the academic community is more open to teaching sustainable development, but the low level of education in sustainability accounting and management remains a concern.[147] For example, the Canadian Institute of Chartered Professional Accountants (CPA) forward looking document points out that technology, geopolitical instability, and social, environmental, and economic issues are all important factors driving change in the accounting profession.[148] At the same time,

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[144] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[145] Charles H. C., Bohr, K. & Cho, T. J. etc. (September 21, 2020). Advancing Sustainability Reporting in Canada: 2019 Report on Progress. Retrieved on December 10th, 2023, from https://doi.org/10.1111/1911-3838.12232
[146] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[147] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[148] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311

Canadian scholars are enthusiastic about promoting social responsibility and sustainable development agendas, are actively engaged in change-oriented research and teaching, and have achieved outstanding results in some academic journals and research projects.[149] However, these scholars face pressures for academic consistency, and how their work promotes, influences, and shapes sustainability accounting and management practices remains an unresolved issue.[150]

Another important manifestation of the development of sustainability accounting in Canada is the progress made in reporting. These reports not only provide detailed information about the company's economic, environmental, and social impacts, but also provide important tools for evaluating and improving sustainability. In Canada, the Toronto Stock Exchange is an important participant in promoting the disclosure of sustainable development information and the development of sustainability accounting and reporting.[151] The Exchange emphasizes that sustainability reporting is not only a necessary step to comply with regulations, but also an important means to communicate a company's long-term value and strategic goals. Records show that more than 80% of Canada's 100 largest companies by revenue have reported sustainable development information, including many commonly discussed topics such as health and safety, climate change, water, and diversity.[152] This suggests that Canada has made some progress in sustainability accounting and reporting, but there is still room for improvement compared to other regions of the world. Another important feature of sustainability accounting

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[149] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[150] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[151] Charles H. C., Bohr, K. & Cho, T. J. etc. (September 21, 2020). Advancing Sustainability Reporting in Canada: 2019 Report on Progress. Retrieved on December 10th, 2023, from https://doi.org/10.1111/1911-3838.12232
[152] Charles H. C., Bohr, K. & Cho, T. J. etc. (September 21, 2020). Advancing Sustainability Reporting in Canada: 2019 Report on Progress. Retrieved on December 10th, 2023, from https://doi.org/10.1111/1911-3838.12232

and reporting in Canada is flexibility and diversity, or in other words, uneven levels of quality. This is largely due to the lack of national reporting in the country, which means that existing companies only choose the reporting methods and standards that are most appropriate for their business objectives.[153] Many companies tend to use the Global Reporting Initiative (GRI) framework for reporting, with about 43% of companies reporting or referring to it. However, the proportion of companies using this framework for sustainability reporting has declined in recent years.[154] This may be because these companies hope to better reflect their unique environmental, social, and governance situations in their reports, or because they are dissatisfied with certain aspects of the GRI and want to adopt standards that better meet their own needs.

United States

Since the late 19th century, the United States has been committed to protecting natural resources and the environment through legislation and campaigns to protect forests, water, soil, and wildlife.[155] The environmental laws of the United States cover not only the environment, but also the goals of social and economic development. These laws aim to protect human health, ecosystem sustainability, environmental justice, and efficient resource use.[156] In addition, some laws include cost-effective measures to reduce pollutant emissions. In recent years, the United States has made some progress in the areas of green technology and sustainable development, especially in local government, brownfield redevelopment, business and industry, education, and

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[153] Charles H. C., Bohr, K. & Cho, T. J. etc. (September 21, 2020). Advancing Sustainability Reporting in Canada: 2019 Report on Progress. Retrieved on December 10th, 2023, from https://doi.org/10.1111/1911-3838.12232
[154] Charles H. C., Bohr, K. & Cho, T. J. etc. (September 21, 2020). Advancing Sustainability Reporting in Canada: 2019 Report on Progress. Retrieved on December 10th, 2023, from https://doi.org/10.1111/1911-3838.12232
[155] Committee On Incorporating Sustainability in The U.S. Environmental Protection Agency. (2011). History of Sustainability. *Sustainability and the U.S. EPA*. Washington, DC: The National Academies Press. https://doi.org/10.17226/13152
[156] Committee On Incorporating Sustainability in The U.S. Environmental Protection Agency. (2011). History of Sustainability. *Sustainability and the U.S. EPA*. Washington, DC: The National Academies Press. https://doi.org/10.17226/13152

religious organizations.[157] However, the United States' sustainable development efforts still face several challenges, such as high energy demand, environmental health risks, carbon dioxide emissions, and class conflicts within the country.[158] The impact of globalization and international competitiveness has also made sustainable development an important issue, especially in the context of increasingly prominent global issues.[159]

In the United States, sustainability accounting is also known as ESG accounting.[160] ESG stands for environmental, social, and corporate governance. ESG accounting is an accounting framework that considers a company's performance in these areas and its impact on the environment and society.[161] More and more companies are starting to prepare ESG reports because ESG factors can directly or indirectly affect the content and disclosure of their financial statements, such as accounting for compensation expense, which directly affects the amount reported in the statements; however, social reputation can indirectly affect financial statements by influencing sales and other means.[162] In addition, in terms of taxation, tax incentives related to ESG are also an important issue to consider, such as environmental and social tax credits.[163]

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[157] Committee On Incorporating Sustainability in The U.S. Environmental Protection Agency. (2011). History of Sustainability. *Sustainability and the U.S. EPA*. Washington, DC: The National Academies Press. https://doi.org/10.17226/13152

[158] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311

[159] Committee On Incorporating Sustainability in The U.S. Environmental Protection Agency. (2011). History of Sustainability. *Sustainability and the U.S. EPA*. Washington, DC: The National Academies Press. https://doi.org/10.17226/13152

[160] Thomson Reuters. (December 06, 2022). The rise of ESG accounting and what it means for auditors. Retrieved on December 10th, 2023, from https://tax.thomsonreuters.com/blog/the-rise-of-esg-accounting-and-what-it-means-for-auditors/

[161] Thomson Reuters. (December 06, 2022). The rise of ESG accounting and what it means for auditors. Retrieved on December 10th, 2023, from https://tax.thomsonreuters.com/blog/the-rise-of-esg-accounting-and-what-it-means-for-auditors/

[162] Thomson Reuters. (December 06, 2022). The rise of ESG accounting and what it means for auditors. Retrieved on December 10th, 2023, from https://tax.thomsonreuters.com/blog/the-rise-of-esg-accounting-and-what-it-means-for-auditors/

[163] Thomson Reuters. (December 06, 2022). The rise of ESG accounting and what it means for auditors. Retrieved on December 10th, 2023, from https://tax.thomsonreuters.com/blog/the-rise-of-esg-accounting-and-what-it-means-for-auditors/

The most important feature of sustainable development accounting in the United States is its oversight and influence by the Sustainable Development Accounting Standards Board (SASB). SASB was established in 2011 in San Francisco, US, and one of its goals is to promote the development of ESG and the improvement of ESG reporting.[164] That's why more and more U.S. companies are disclosing environmental, social, and governance information. However, there are still challenges with the accuracy and collection methods of much of the data in this area. In 2023, the U.S. Securities and Exchange Commission is revising its proposed sustainability reporting requirements to achieve consistent reporting requirements.[165] Among them, the report requires linking environmental risks with financial risks, which is within the scope of the authority of the United States Securities and Exchange Commission (SEC)[166].

The development of sustainability accounting in the United States is reflected in the educational sector. Currently, academia and society are advocating for the integration of sustainability accounting into the current curriculum, thereby enhancing students' multidimensional understanding of the concept of sustainability through educational reform.[167] This is mainly because in the traditional education system, the knowledge of accounting tends to be more technical, in other words, people's excessive attention to financial capital comes at the

[164] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a better understanding of sustainability accounting and management research and teaching in north america: A look at the community. Sustainability Accounting, Management and Policy Journal, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311
[165] Cohen, S. (September 25, 2023). The Arrival of Mandatory Corporate Sustainability Reporting. Retrieved on December 10th, 2023, from https://news.climate.columbia.edu/2023/09/25/the-arrival-of-mandatory-corporate-sustainability-reporting/
[166] Cohen, S. (September 25, 2023). The Arrival of Mandatory Corporate Sustainability Reporting. Retrieved on December 10th, 2023, from https://news.climate.columbia.edu/2023/09/25/the-arrival-of-mandatory-corporate-sustainability-reporting/
[167] The White House. (January, 2023). National Strategy to Develop Statistics for Environmental-Economic Decisions. Washington.

expense of natural capital.[168] Therefore, in many academic reports, the authors reflect the importance of integrating sustainability accounting into the curriculum.

One of the hallmarks of sustainability accounting in the United States is the accurate measurement and management of natural capital.[169] Natural capital, including natural resources such as water, soil, forests, and biodiversity, plays an irreplaceable role in the macroeconomic development of the country. Comprehensive measurement and management of this natural capital can help predict potential systemic risks in the future, such as climate change, and also provide policymakers with important information on financial stability.[170] This has important policy implications for protecting the environment and achieving sustainable development while ensuring economic growth.

Like many countries, although many companies in the United States voluntarily provide sustainability reports, there are still doubts about the authenticity and credibility of this information due to the lack of unified indicators and statutory audits.[171] Therefore, the implementation of mandatory and unified corporate sustainable development reports is in process.

European Union

In Europe, Sweden was an early proponent of proposing and implementing the concept of sustainable development.[172] Influenced by the United States, Sweden began to pay attention to

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[168] The White House. (January, 2023). National Strategy to Develop Statistics for Environmental-Economic Decisions. Washington.
[169] Combs, D. G. & Mattix, C. (May, 2021). Sustainability Accounting in the United States Higher Education System. *QRBD Quarterly Review of Business Disciplines*. ISSN 2329-5163
[170] Combs, D. G. & Mattix, C. (May, 2021). Sustainability Accounting in the United States Higher Education System. *QRBD Quarterly Review of Business Disciplines*. ISSN 2329-5163
[171] Cohen, S. (September 25, 2023). The Arrival of Mandatory Corporate Sustainability Reporting. Retrieved on December 10th, 2023, from https://news.climate.columbia.edu/2023/09/25/the-arrival-of-mandatory-corporate-sustainability-reporting/
[172] Ahlberg, M. (2009). Sustainable Development in Sweden – A Success Story: Discourse analysis. *L'Europe en Formation*, 352, 157-179. https://doi.org/10.3917/eufor.352.0157

environmental issues in the early 1970s and took a number of measures to protect the environment and resources. Before the Swedish government officially introduced the term sustainable development, Sweden's sustainable thinking had always been reflected in the ecological field.[173] It was not until the early 1990s that discussions about sustainable development began. Subsequently, influenced by Sweden, other countries in the European Union began to introduce the concept of sustainable development. By the 1992 United Nations Conference on Environment and Development, the European Union had formulated many relevant laws and regulations to promote the concept of sustainability.[174] Sweden's leading ideology provides an important foundation and example for the sustainable development of EU countries.

In 1994, the European Commission proposed a far-reaching "green accounting" strategy.[175] This strategy initiated close cooperation with the United Nations and the Organization for Economic Cooperation and Development (OECD) to promote the development and research of environmental accounting methodologies in member countries and Eurostat.[176] Driven by this strategy, Europe has begun to develop a comprehensive environmental accounting system. In 2003, a "European Corporate Social Responsibility" movement was launched in Europe to promote the concept of corporate social responsibility throughout the European

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[173] Ahlberg, M. (2009). Sustainable Development in Sweden – A Success Story: Discourse analysis. *L'Europe en Formation*, 352, 157-179. https://doi.org/10.3917/eufor.352.0157
[174] Ahlberg, M. (2009). Sustainable Development in Sweden – A Success Story: Discourse analysis. *L'Europe en Formation*, 352, 157-179. https://doi.org/10.3917/eufor.352.0157
[175] Amann, B., Jaussaud, J., Mizoguchi, S., Nakamura, H. (2022). Environmental Management Accounting in European Countries and Japan: A Literature Survey. In: Andreosso-O'Callaghan, B., Rey, S., Taylor, R. (eds) *Sustainable Development in Asia*. PP167 – 177. https://doi.org/10.1007/978-3-030-94679-1_9
[176] Amann, B., Jaussaud, J., Mizoguchi, S., Nakamura, H. (2022). Environmental Management Accounting in European Countries and Japan: A Literature Survey. In: Andreosso-O'Callaghan, B., Rey, S., Taylor, R. (eds) *Sustainable Development in Asia*. PP167 – 177. https://doi.org/10.1007/978-3-030-94679-1_9

continent.[177] This movement not only strengthened the social and environmental responsibility of companies, but also promoted the development of social and environmental accounting research at the time.

An important feature of the concept of sustainability accounting in EU countries is that it was promoted relatively late, but related regulations have developed rapidly. In 2001, the EU adopted the EU Sustainable Development Strategy (EU SDS), which links economic growth with social justice and environmental protection, and was updated in 2006 with the EU SDS.[178] In 2014, the Non-Financial Reporting Directive (NFRD) was issued.[179] A requirement in the directive states that due to the fact that many large companies operate in multiple member states, it is crucial for companies, shareholders, and other stakeholders to oversee and coordinate regulations on non-financial information.[180] Compared to other regions, the EU now requires companies to disclose a greater variety of content. According to the requirements of the directive, in addition to financial information, companies are required to report on the current and expected future impact of daily operations on the environment and on different energy sources, as well as greenhouse gas emissions; in addition, in terms of society, the report should provide a range of

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[177] Amann, B., Jaussaud, J., Mizoguchi, S., Nakamura, H. (2022). Environmental Management Accounting in European Countries and Japan: A Literature Survey. In: Andreosso-O'Callaghan, B., Rey, S., Taylor, R. (eds) *Sustainable Development in Asia*. PP167 – 177. https://doi.org/10.1007/978-3-030-94679-1_9

[178] Eurostat. (2023). Archive: Sustainable development - executive summary. Retrieved on December 10th, 2023, from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:Sustainable_development_-_executive_summary

[179] European Parliament, Council of the European Union. (2023). Directive 2014/95/EU of the European Parliament and of the Council Of 22 October 2014. *Official Website of European Union*. Retrieved on December 10th, 2023, from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0095

[180] European Parliament, Council of the European Union. (2023). Directive 2014/95/EU of the European Parliament and of the Council Of 22 October 2014. *Official Website of European Union*. Retrieved on December 10th, 2023, from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0095

information on health and safety at work, including information on anti-corruption and human rights, as well as relevant international labour standards.[181]

Furthermore, it the beginning of the 21st century, there was a period of discussion in Europe about whether sustainability reporting should be mandatory, with amendments proposed that would require companies to assess and manage the environmental and social impacts of their operations.[182] Financial performance and financial statements are important, but they are only one part of a company's overall report. According to the requirements of the International Integrated Reporting Committee (IIRC), the comprehensive report should include how the company is strategically meeting its short-, medium-, and long-term goals, taking into account environmental and social factors.[183]

In Europe, regulations and standards for sustainability accounting and reporting are gradually improving. On January 5, 2023, the European Union (EU) adopted the Corporate Sustainability Reporting Directive.[184] Under the requirements of the Directive, approximately 50,000 companies, including large corporations and listed small and medium-sized enterprises, will be required to submit sustainability reports.[185] The first batch of companies will start applying the new sustainability reporting standards in fiscal year 2024 and report in 2025.[186]

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181 European Parliament, Council of the European Union. (2023). Directive 2014/95/EU of the European Parliament and of the Council Of 22 October 2014. *Official Website of European Union*. Retrieved on December 10th, 2023, from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0095
182 Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997
183 Hyrslova, J., Beckova, H. & Kubankova, M. (2015). Sustainability Accounting: Brief History and Perspectives. Retrieved on December 1st, 2023, from http://hdl.handle.net/10195/66997
184 UNCTAD. (October 19, 2023). Review of practical implementation of and recent developments in sustainability reporting requirements. Retrieved on December 10th, 2023, from https://unctad.org/board-action/review-practical-implementation-and-recent-developments-sustainability-reporting
185 UNCTAD. (October 19, 2023). Review of practical implementation of and recent developments in sustainability reporting requirements. Retrieved on December 10th, 2023, from https://unctad.org/board-action/review-practical-implementation-and-recent-developments-sustainability-reporting
186 UNCTAD. (October 19, 2023). Review of practical implementation of and recent developments in sustainability reporting requirements. Retrieved on December 10th, 2023, from https://unctad.org/board-action/review-practical-implementation-and-recent-developments-sustainability-reporting

Compared to the requirements of the ISSB, the EU has a broader range of requirements for sustainability reporting guidelines. The ISSB focuses primarily on public companies, and its guidelines focus on providing a globally applicable sustainability reporting framework; however, the EU requires more types of companies to disclose sustainability information, including not only large public companies but also small and medium-sized enterprises.[187] . On July 31, 2023, the European Commission approved the European Sustainability Reporting Standards (ESRS), which must be used by all companies covered by the Corporate Sustainability Reporting Directive (CSRD).[188] The main purpose of these standards is to require companies to provide professional information to investors, enabling them to gain a deeper understanding of the company's strategies and attitudes towards sustainable development.[189] At the same time, these standards comprehensively address environmental, financial, and social issues, providing a foundation for addressing climate change, human rights, and biodiversity.[190]

For the EU, many companies operate in several member states, so it is necessary for the future EU to improve regulations and laws on cross-border cooperation and to jointly promote the development of sustainability accounting.[191] Externally, many companies cooperate with companies in the United States, so the disclosure of sustainability reports must meet the

[187] UNCTAD. (October 19, 2023). Review of practical implementation of and recent developments in sustainability reporting requirements. Retrieved on December 10th, 2023, from https://unctad.org/board-action/review-practical-implementation-and-recent-developments-sustainability-reporting

[188] Directorate-General for Financial Stability, Financial Services and Capital Markets Union. (July 31, 2023). The Commission adopts the European Sustainability Reporting Standards. Retrieved on December 10th, 2023, from https://finance.ec.europa.eu/news/commission-adopts-european-sustainability-reporting-standards-2023-07-31_en

[189] Directorate-General for Financial Stability, Financial Services and Capital Markets Union (July 31, 2023). The Commission adopts the European Sustainability Reporting Standards. Retrieved on December 10th, 2023, from https://finance.ec.europa.eu/news/commission-adopts-european-sustainability-reporting-standards-2023-07-31_en

[190] Directorate-General for Financial Stability, Financial Services and Capital Markets Union (July 31, 2023). The Commission adopts the European Sustainability Reporting Standards. Retrieved on December 10th, 2023, from https://finance.ec.europa.eu/news/commission-adopts-european-sustainability-reporting-standards-2023-07-31_en

[191] Deloitte. (January 9, 2023). Global Reach of the E.U. Corporate Sustainability Reporting Directive and the Impact on U.S. Companies. Retrieved on December 10th, 2023, from https://dart.deloitte.com/USDART/home/publications/deloitte/heads-up/2023/esg-eu-corporate-sustainability-reporting

requirements of both regions.[192] Therefore, to meet international needs, the EU can coordinate with other countries to meet uniform reporting requirements.

Asia

China

After experiencing World War II and civil war, China was founded in 1949. From the 1950s to the mid-1980s, China was in a state of rapid development. At that time, China's main goal was to develop its economy, industry, and technology. In the late 1980s, as the concept of sustainable development began to take hold in Western countries, the Chinese government gradually began to pay attention to this issue. In 1992, at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, China was the first country to declare its willingness to pursue sustainable development and pledged to make environmental protection the foundation of economic development.[193] Moreover, representatives from over 178 countries attended this conference and eventually adopted Agenda 21.[194] Agenda 21 is a comprehensive plan of action designed for global, national, and local implementation by organizations within the United Nations system, governments, and major groups.[195] It addresses all aspects of human impact on the environment and aims to promote sustainable development through cooperative efforts on a worldwide scale.[196] China also agreed to carry out Agenda 21

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[192] Deloitte. (January 9, 2023). Global Reach of the E.U. Corporate Sustainability Reporting Directive and the Impact on U.S. Companies. Retrieved on December 10th, 2023, from https://dart.deloitte.com/USDART/home/publications/deloitte/heads-up/2023/esg-eu-corporate-sustainability-reporting

[193] Petushkova, V. V. (January 25, 2022). China's Experience and Prospects for Sustainable Development. Published online 2022 May 15. doi: 10.1134/S1019331622020095

[194] United Nations. (1992). Agenda 21. Published by UNCED. Retrieved on December 10th, 2023, from https://sdgs.un.org/publications/agenda21

[195] United Nations. (1992). Agenda 21. Published by UNCED. Retrieved on December 10th, 2023, from https://sdgs.un.org/publications/agenda21

[196] United Nations. (1992). Agenda 21. Published by UNCED. Retrieved on December 10th, 2023, from https://sdgs.un.org/publications/agenda21

work in its own country, and in 1994 the Chinese government approved China's Agenda 21.[197] This marked the formal entry of the concept of sustainable development into the minds of the people.

Undoubtedly, compared to some developed countries, China developed the concept of sustainable development relatively late. Therefore, the development of sustainability accounting is also relatively slow. In China, people are more accustomed to referring to sustainability accounting as green accounting or environmental accounting.[198] The core of this approach is to include the costs that companies impose on the environment in the scope of their accounting, to prevent companies from shifting their responsibilities and risks onto society, and to assess the impact of their business activities on society and the environment in a comprehensive manner.[199] On the one hand, China's economic and moral development is influenced by traditional culture, Taoism and Confucianism. Among them, Taoism advocates the concept of "harmony between nature and man", while Confucianism advocates the idea of "balancing social justice and benefits".[200] Therefore, under the influence of local culture, enterprises advocate the equal development of society and the natural environment in the development of sustainability accounting, and advocate environmentally friendly production and business activities.[201] On the other hand, sustainable development accounting in China not only focuses on the legitimacy of corporate social responsibility, but also emphasizes the broad participation of stakeholders,

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[197] Petushkova, V. V. (January 25, 2022). China's Experience and Prospects for Sustainable Development. Published online 2022 May 15. doi: 10.1134/S1019331622020095

[198] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development

[199] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development

[200] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development

[201] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development

focuses on the performance issues of corporate sustainable development, and provides more meaningful information and indicators for stakeholders.[202]

Since 2008, researchers in the academic community have conducted in-depth research on sustainable development accounting in China, covering aspects such as the perspective of financial analysts, the motivation of managers, and the impact of disclosure on corporate performance and social externalities.[203] As a result, China's corporate social responsibility reporting requirements are gradually becoming mandatory, covering the disclosure of environmental and social performance aspects of companies. This requires public companies to disclose relevant social responsibility information in their annual reports to meet regulatory requirements.[204] At the same time, many companies voluntarily produce sustainability reports to showcase their social responsibility performance. More importantly, China is actively promoting the construction of a carbon emissions trading market and conducting pilot projects in several regions to encourage companies to reduce carbon emissions by introducing carbon trading mechanisms.[205] For example, the Chinese government has issued the "Interim Provisions on Accounting Treatment of Carbon Emission Rights Trading Pilots", which clarifies the accounting treatment methods for carbon emission quotas and begins to develop accounting standards for carbon emission trading, thereby strengthening the transparency and comparability of carbon emission accounting.[206] In addition, China is also committed to developing a green financial

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[202] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development

[203] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development

[204] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development

[205] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development

[206] Zhou, K. & Li, Y. (2019). Influencing Factors and Fluctuation Characteristics of China's Carbon Emission Trading Price. Physica A: Statistical Mechanics and its Applications, Volume 524, 2019, Pages 459-474, ISSN 0378-4371, https://doi.org/10.1016/j.physa.2019.04.249.

system and promoting economic development in a greener and more sustainable direction by establishing mechanisms such as green loans, green insurance, and green bonds.[207] These measures have effectively reduced the cost of debt financing for polluting enterprises, promoted the development of green enterprises, and limited the growth of pollution-intensive enterprises.

At present, sustainability accounting in China is still in its infancy and faces challenges such as insufficient interdisciplinary intersection, insufficient global participation, and insufficient education and training.[208] To address these challenges, future trends include improving the quality of corporate social responsibility reporting, focusing on the participation of non-state-owned enterprises in sustainable development, emphasizing green financial management, and promoting green supply chain management. Future research requires more interdisciplinary cooperation, greater attention to the participation of Chinese enterprises in global sustainable development projects and strengthening the integration of sustainable development education into the knowledge system of the accounting profession.[209]

Japan

The development of sustainability accounting in Japan can be traced back to the 1990s. At that time, the government collaborated with academic personnel and received financial support from the Japan Environment Agency to jointly propose and initiate research on environmental accounting and indicators.[210] By 1993, these studies had expanded to another

[207] Jiang, D., Lu, Y., & Li, F. etc. (April, 2008). Green Accounting Practice in China. UNEP – Tomgji Institute of Environment for Sustainable Development
[208] Meng, Q. & Kan, X. (August 13, 2015). The Confusion and Countermeasures of Green Accounting in China. *Technology and Investment*, 06, 127-131. doi: 10.4236/ti.2015.63014
[209] Meng, Q. & Kan, X. (August 13, 2015). The Confusion and Countermeasures of Green Accounting in China. *Technology and Investment*, 06, 127-131. doi: 10.4236/ti.2015.63014
[210] Ariyoshi, N. & Moriguchi, Y. (2004). The Development of Environmental Accounting Frameworks and Indicators for Measuring Sustainability in Japan. *Measuring Sustainable Development Integrated Economic, Environmental and Social Frameworks*, P287 – P304. ISBN: 92-64-02012-8

level, namely socio-economic accounting (SEA).[211] In the following years, after continuously updating the test data results, the research focus of environmental accounting gradually expanded from specific versions of socio-economic accounting to other areas, such as the calculation of environmental protection expenditures and accounting related to waste management.[212]

The concept of sustainable development in Japan is influenced by traditional Shinto culture, which emphasizes the achievement of social, economic, and environmental sustainability through cleansing, purification, and reconstruction.[213] In the process of sustainable development, Japan advocates the transmission of sustainability theories through education, the accumulation of sustainability experiences through cooperation and practice, and the search for future solutions through technology development.[214] Thus, the development of sustainability accounting concepts in Japan is a continuous process of updating and expanding the scope of research.

In Japan, sustainability accounting is also known as environmental accounting. The development of accounting in Japan is influenced by the Ministry of Environment (MOE) and the Ministry of Economy, Trade, and Industry (METI).[215] At the beginning of the 21st century, Japan's environmental and economic development direction was surprising. From 2001 to 2003, an investigation found that the main purpose of Japanese corporate environmental accounting was to provide external reports, and they did not really realize its importance for internal

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[211] Ariyoshi, N. & Moriguchi, Y. (2004). The Development of Environmental Accounting Frameworks and Indicators for Measuring Sustainability in Japan. *Measuring Sustainable Development Integrated Economic, Environmental and Social Frameworks*, P287 – P304. ISBN: 92-64-02012-8

[212] Ariyoshi, N. & Moriguchi, Y. (2004). The Development of Environmental Accounting Frameworks and Indicators for Measuring Sustainability in Japan. *Measuring Sustainable Development Integrated Economic, Environmental and Social Frameworks*, P287 – P304. ISBN: 92-64-02012-8

[213] Bonciu, F. (2007). 2007. The Japanese Concept of Sustainable Development at a Global Level. *Romanian Economic Business Review*, Romanian-American University, vol. 2(2), pages 7-13, June

[214] Bonciu, F. (2007). 2007. The Japanese Concept of Sustainable Development at a Global Level. *Romanian Economic Business Review*, Romanian-American University, vol. 2(2), pages 7-13, June

[215] Kokubu, K., Nashioka, E. (2005). Environmental Management Accounting Practices in Japan. In: Rikhardsson, P.M., Bennett, M., Bouma, J.J., Schaltegger, S. (eds) *Implementing Environmental Management Accounting: Status and Challenges.* Eco-Efficiency in Industry and Science, vol 18. Springer, Dordrecht. https://doi.org/10.1007/1-4020-3373-7_16

management.[216] This is mainly because the company is deeply influenced by the MOE guidelines, which emphasize the important role of environmental accounting in external disclosure.[217]

In Japan, there is a debate about whether environmental accounting information should be voluntary or mandatory. On the one hand, experts believe that companies with better performance will be willing to disclose trustworthy information, as this voluntary disclosure can further promote the company's development.[218] On the other hand, mandatory regulations can encourage poor performers to disclose trustworthy information, thereby achieving standardized reporting. Based on current data and legislation, these two theories are still controversial.[219] In addition, environmental conservation costs (ECC) play an important role in environmental accounting research and corporate reporting in Japan. In order to achieve comparability of information, environmental accounting standards propose that current ECC and other related information be published simultaneously with historical data.[220] At the same time, within

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[216] Kokubu, K., Nashioka, E. (2005). Environmental Management Accounting Practices in Japan. In: Rikhardsson, P.M., Bennett, M., Bouma, J.J., Schaltegger, S. (eds) *Implementing Environmental Management Accounting: Status and Challenges.* Eco-Efficiency in Industry and Science, vol 18. Springer, Dordrecht. https://doi.org/10.1007/1-4020-3373-7_16

[217] Kokubu, K., Nashioka, E. (2005). Environmental Management Accounting Practices in Japan. In: Rikhardsson, P.M., Bennett, M., Bouma, J.J., Schaltegger, S. (eds) *Implementing Environmental Management Accounting: Status and Challenges.* Eco-Efficiency in Industry and Science, vol 18. Springer, Dordrecht. https://doi.org/10.1007/1-4020-3373-7_16

[218] Yook, K., Song, H., Patten, D. M., & Kim, I. (2017). The disclosure of environmental conservation costs and its relation to eco-efficiency: Evidence from japan. Sustainability Accounting, Management and Policy Journal, 8(1), 20-42. doi: https://doi.org/10.1108/SAMPJ-07-2016-0039

[219] Yook, K., Song, H., Patten, D. M., & Kim, I. (2017). The disclosure of environmental conservation costs and its relation to eco-efficiency: Evidence from japan. Sustainability Accounting, Management and Policy Journal, 8(1), 20-42. doi: https://doi.org/10.1108/SAMPJ-07-2016-0039

[220] Yook, K., Song, H., Patten, D. M., & Kim, I. (2017). The disclosure of environmental conservation costs and its relation to eco-efficiency: Evidence from japan. Sustainability Accounting, Management and Policy Journal, 8(1), 20-42. doi: https://doi.org/10.1108/SAMPJ-07-2016-0039

different industries, ECC information should be classified in detail, which is conducive to directly observing the relationship between each environmental cost and income.[221]

To address climate issues, in June 2021, Japan issued Corporate Governance Guidelines (CGC) that require the Tokyo Stock Exchange (TSE) to collect, analyze, and disclose information related to climate change and how this information affects the company's daily operations.[222] In March 2023, Japan required all domestic and foreign companies listed in Japan to publish sustainability reports, including information on strategies, indicators and targets, governance and risk management.[223] This marks Japan's entry into the first stage of mandatory disclosure of sustainability information.

Comparation

Canada VS. US

Like the United States, Canada actively participates in global conferences and signs international agreements to achieve sustainable development. Regarding the development of sustainability accounting, the Canadian academic community has shown enthusiasm for sustainable development research and education. However, concerns have been raised about the low level of education in sustainability accounting and management. The U.S. educational system is promoting the inclusion of sustainability accounting in the curriculum to enhance students' multidimensional understanding of sustainability. In terms of existing financial and

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[221] Yook, K., Song, H., Patten, D. M., & Kim, I. (2017). The disclosure of environmental conservation costs and its relation to eco-efficiency: Evidence from japan. Sustainability Accounting, Management and Policy Journal, 8(1), 20-42. doi: https://doi.org/10.1108/SAMPJ-07-2016-0039

[222] Cole, E., Blankenship, M., & Johnson, J.E. (December 10, 2021). Key Points Concerning the Revision to Japan's Corporate Governance Code. Published by Winston & Strawn LLP. Retrieved on December 10th, 2023, from https://www.winston.com/en/insights-news/key-points-concerning-the-revision-to-japans-corporate-governance-code#:~:text=In%20June%202021%2C%20the%20revision,Tokyo%20Stock%20Exchange%20(TSE).

[223] Lawless, K., Ushijima, K., & Hara, K. (October 13, 2023). What's Next for Japanese Sustainability Disclosure Standards. Retrieved on December 10th, 2023, from https://www.ey.com/en_jp/sustainability/whats-next-for-japanese-sustainability-disclosure-standards

non-financial reporting, the format of sustainability reporting in Canada is flexible, and the Toronto Stock Exchange plays an important role in promoting sustainability reporting. In the United States, the development of sustainability accounting is mainly overseen by the Sustainable Development Accounting Standards Board (SASB). Due to the impact of ESG factors on financial statements, American companies are increasingly preparing ESG reports. Due to the diversity of sustainability reporting in Canada, the quality of reports is uneven and there is a lack of national reporting standards. Therefore, it is imperative to discuss and study the experiences of sustainability accounting scholars in the future. Similarly, the U.S. government is concerned about whether companies have achieved authenticity and credibility in sustainable development reporting. With the revision of reporting requirements by the US Securities and Exchange Commission, mandatory and uniform corporate sustainability reports will be the next focus of attention.

Canada VS. EU

The governments of Canada and the EU have implemented similar sustainable development programs and have actively participated in global conferences and agreements related to sustainable development. In addition, both Canadian and European companies have proposed to integrate sustainable development into their business models, and their private sectors are gradually increasing their awareness and practice of sustainable management. However, the differences in the development of sustainability accounting between the European Union and Canada are reflected in the promotion of academia. In Canada, academia plays an important role in promoting the development of accounting and is committed to changing the world. In the EU, however, the focus is on regulatory development, discussing mandatory sustainability reporting and comprehensive reporting requirements. At the same time, Canada's sustainability accounting and reporting shows flexibility and diversity. In the European Union, the NFRD requires a broader range of content covering different environmental and social impacts, reflecting a higher level of standardization. In recent years, Canada's adoption of the Global Reporting Initiative (GRI) framework has declined. In contrast, the EU has adopted the Enterprise Sustainability Reporting Directive and the European Sustainability Reporting Standards, which are more standardized.

Canada VS. China

Compared to Canada, China got involved in sustainable development relatively late, which has led to a late start in sustainability accounting. Both regions are committed to promoting the concept of sustainable development and sustainability accounting through education. However, Canada's strategy is to transform a resource-oriented society into a more protective one. Influenced by traditional culture, China emphasizes harmonious coexistence with nature, balancing social fairness and interests. In terms of sustainability reporting, Canadian companies tend to choose reporting methods and standards based on their business objectives, resulting in uneven quality levels. China is gradually implementing mandatory corporate social responsibility reporting requirements to build a more standardized framework. In terms of future development directions, Canada will achieve academic consistency by strengthening innovation in the education system and exploring relevant experiences in sustainability accounting. China will continue to develop its own unique green accounting and financial management to address challenges such as interdisciplinary overlap and insufficient global participation.

Canada VS. Japan

Canada, like Japan, advocates the transmission of sustainable development and sustainability accounting theories through education. However, Japan's sustainable development is influenced by traditional culture, which has led to the development of environmental accounting. Canada advocates incorporating sustainable development into business models to achieve social transformation. In terms of reporting, Japan focuses on external reporting in the disclosure of sustainability reports, while the development of internal reporting is slow. At the same time, there is a debate in Japan about whether the government should require companies to disclose sustainability information, but in 2023, Japan has entered the first stage of mandatory disclosure. Canada does not have a mandatory reporting requirement, although the Toronto Stock Exchange is actively promoting the development of sustainability reporting.

CHAPTER 5. START FROM MANUFACTURING, NOW BANKING

Sustainability Accounting in Manufacturing

In the industrial era, the mainstream of economic development is manufacturing, which is the process of transforming raw materials into goods or services.[224] The level of manufacturing development reflects a country's level of productivity and is an important indicator for distinguishing between developed and developing countries. However, after rapid development in recent decades, society has gradually recognized the enormous threat that resource consumption and environmental pollution caused by manufacturing pose to human and social stability. In order to maintain human health and the future, various industries are actively seeking sustainable development solutions.

In the manufacturing industry, raw materials are an essential factor, mainly including various natural resources and energy. First of all, energy is the pillar of the national economy, not only driving production activities but also influencing the development of other industries. With

[224] Buallay, Amina & Hamdan, Allam & Barone, Elisabetta. (2019). Sustainability reporting and firm's performance: Comparative study between manufacturing and banking sectors. *International Journal of Productivity and Performance Management*. ahead-of-print. 10.1108/IJPPM-10-2018-0371

the popularization of the concept of sustainable development, the use of energy has begun to receive societal attention, and the business activities of energy companies also involve various environmental impacts and social responsibilities, such as employee safety and energy sustainability.[225] The business model of energy companies is relatively unique. This is mainly because energy is the foundation of manufacturing, and the development and use of energy is directly related to environmental change. Therefore, a new reporting framework is needed to communicate information to stakeholders. In the process of developing sustainability accounting, integrated reports cover the concepts of environmental, social, and governance (ESG) and analyze the company's operating conditions from both financial and non-financial perspectives.[226] At the same time, the integrated report also meets the requirements of the Sustainability Accounting Standards Board (SASB) for the company.[227] The Global Reporting Initiative (GRI) guidelines, which are a voluntary tool, are primarily used for the integrated report. The flexibility of the GRI guidelines promotes standardization of the sustainability accounting framework and reporting for energy companies.

Second of all, the production process is the second important factor in manufacturing. In the traditional production process, due to the lack of technology, it mainly relies on the experience of workers, resulting in long production cycles and easy labor safety problems. Meanwhile, traditional production processes generate a large amount of waste, which can cause environmental pollution, affect ecological balance, and disrupt biodiversity. For example, in the

[225] Buallay, A. (December 17, 2019). Sustainability Reporting and Firm's Performance: Comparative Study Between Manufacturing and Banking Sectors. *International Journal of Productivity and Performance Management.* Publisher: Emerald Publishing Limited. ISSN: 1741-0401

[226] Buallay, A. (December 17, 2019). Sustainability Reporting and Firm's Performance: Comparative Study Between Manufacturing and Banking Sectors. *International Journal of Productivity and Performance Management.* Publisher: Emerald Publishing Limited. ISSN: 1741-0401

[227] Buallay, A. (December 17, 2019). Sustainability Reporting and Firm's Performance: Comparative Study Between Manufacturing and Banking Sectors. *International Journal of Productivity and Performance Management.* Publisher: Emerald Publishing Limited. ISSN: 1741-0401

mid-19th century, the use of the pesticide DDT not only polluted soil and water resources, but also affected human health. Therefore, sustainability accounting advocates reducing financial and non-financial costs by reducing the amount of waste generated in production.[228] The Sustainability Committee updated and improved the disclosure standards for sustainability accounting and reporting for various industries in recent years, aiming to improve the accounting framework for the manufacturing industry through laws and regulations. However, due to the number of departments involved in the manufacturing industry, the complex components of logistics processes, and the rapid pace of industry updates, there are still challenges in completing sustainability reports.[229]

Sustainability Accounting in Financial Industry

Sharachchandra Lélé[230], an Adjunct Professor at IISER Pune since 2011, pointed out the irrationality of the World Commission on Environment and Development's definition of sustainable development.[231] He believes that the current definition of sustainable development ignores the issues of poverty and environmental degradation, so that the function of sustainable development in promoting economic development is unclear.[232] Lélé also emphasizes that although sustainable development is a new concept, there seems to be a lack of attention to how

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[228] Buallay, Amina & Hamdan, Allam & Barone, Elisabetta. (2019). Sustainability reporting and firm's performance: Comparative study between manufacturing and banking sectors. *International Journal of Productivity and Performance Management*. ahead-of-print. 10.1108/IJPPM-10-2018-0371

[229] Buallay, Amina & Hamdan, Allam & Barone, Elisabetta. (2019). Sustainability reporting and firm's performance: Comparative study between manufacturing and banking sectors. *International Journal of Productivity and Performance Management*. ahead-of-print. 10.1108/IJPPM-10-2018-0371

[230] Lélé, S. holds the position of Distinguished Fellow in Environmental Policy & Governance at the Centre for Environment & Development at ATREE, Bengaluru. He was the Director of CISED until its merger with ATREE in 2009. Sharad has also held visiting appointments at prestigious institutions such as Cambridge University, Stanford University and the University of Waterloo in Canada. He is a founding member and past President of the Indian Society for Ecological Economics. (Retrieved from https://www.iiserpune.ac.in/research/department/humanities-and-social-sciences/people/faculty/adjunct-faculty/sharachchandra-lele/358)

[231] Iorgulescu, F. & Andreea. (2021). Sustainable Finance. *Finance And Sustainable Development: Designing Sustainable Financial Systems*, pp 22-33. Published by London: Routledge. ISBN: 9780367693824

[232] Iorgulescu, F. & Andreea. (2021). Sustainable Finance. *Finance And Sustainable Development: Designing Sustainable Financial Systems*, pp 22-33. Published by London: Routledge. ISBN: 9780367693824

to show the link between environmental issues and social responsibility.[233] Therefore, he advocates that governments and regulatory agencies should publish detailed and strict explanations to prevent people from using them incorrectly. In 2005, although many people in society supported the development of sustainable development, the specific way or tool used for its development was still the focus of debate.[234] In 2015, the United Nations adopted the 2030 Agenda for Sustainable Development, which proposed 17 Sustainable Development Goals (SDGs), mainly covering economic, social, and environmental aspects, with the aim of ensuring global cooperation and achieving peaceful coexistence between humans and nature.[235] However, by 2019, reports from various countries showed that the world would not be able to achieve all the goals by 2030. The main reasons for this dilemma were difficulties in poverty alleviation, an increase in world population, global health conditions, and gender issues, etc..[236] Therefore, based on the current situation, global cooperation remains essential and financial support must also be put on the agenda.

Compared to the development of sustainability in the manufacturing industry, its emergence and collaboration in the financial industry is relatively late. The purpose of traditional financial systems is to maximize shareholder wealth, but it ignores the costs and benefits of social, environmental, and other dimensions. In addition, traditional financial systems place more emphasis on pursuing short-term goals often at the expense of environmental and social factors, which undermines long-term goals. The relationship between the financial system and the

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[233] Iorgulescu, F. & Andreea. (2021). Sustainable Finance. *Finance And Sustainable Development: Designing Sustainable Financial Systems*, pp 22-33. Published by London: Routledge. ISBN: 9780367693824

[234] Iorgulescu, F. & Andreea. (2021). Sustainable Finance. *Finance And Sustainable Development: Designing Sustainable Financial Systems*, pp 22-33. Published by London: Routledge. ISBN: 9780367693824

[235] Iorgulescu, F. & Andreea. (2021). Sustainable Finance. *Finance And Sustainable Development: Designing Sustainable Financial Systems*, pp 22-33. Published by London: Routledge. ISBN: 9780367693824

[236] Iorgulescu, F. & Andreea. (2021). Sustainable Finance. *Finance And Sustainable Development: Designing Sustainable Financial Systems*, pp 22-33. Published by London: Routledge. ISBN: 9780367693824

concept of sustainable development appears to be indirect. This is mainly due to the inherent function of today's system, which is to use financial resources to develop productivity and support sustainable development.[237] Therefore, the transition from traditional finance to sustainable finance requires a holistic conceptual change, such as incorporating environmental risks into financial models, assessing and managing environmental issues and risks, and balancing the interests of stakeholders, including the environment and society.[238]

Sustainability Accounting in Banking

Banks are an important part of the financial industry; also, they are products of the evolution of the relationship between currency and commodities to a certain stage. As financial institutions, they provide people with various financial products and services, such as bonds, deposits, and loans. In 2007, under the influence of sustainable development, the European Investment Bank and the World Bank issued the first green bonds; since then, banks around the world have also developed new businesses such as green mortgages and sustainability bonds.[239] Like the financial industry as a whole, banks have made slow progress on social and environmental dimensions, and people's attention to their direct impact on the environment is relatively limited.[240] In 2008, after the end of the financial crisis, people began to realize the impact of the financial industry on the national economy. At the same time, some banks have

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[237] Iorgulescu, F. & Andreea. (2021). Sustainable Finance. *Finance And Sustainable Development: Designing Sustainable Financial Systems*, pp 22-33. Published by London: Routledge. ISBN: 9780367693824
[238] Iorgulescu, F. & Andreea. (2021). Sustainable Finance. *Finance And Sustainable Development: Designing Sustainable Financial Systems*, pp 22-33. Published by London: Routledge. ISBN: 9780367693824
[239] Boitan, I. A. (2021). Sustainable Banking Systems. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 50-68. Published by London : Routledge. ISBN : 9780367693824
[240] Buallay, Amina & Hamdan, Allam & Barone, Elisabetta. (2019). Sustainability reporting and firm's performance: Comparative study between manufacturing and banking sectors. *International Journal of Productivity and Performance Management*. ahead-of-print. 10.1108/IJPPM-10-2018-0371

begun to proactively disclose ESG information about themselves.[241] As a result, it is becoming increasingly important for banks, and indeed the financial industry as a whole, to produce sustainability reports.

The development of sustainability accounting for banks can start with sustainable banks. Sustainable banking is an evolving concept. In 2019, the European Banking Authority defined it as a financial service that incorporates ESG standards to promote sustainable economic development.[242] Banks are adopting sustainable business practices, mainly to increase their competitiveness in the market. From the customers' perspective, choosing sustainable and socially impactful financial products can enrich their investment portfolio.[243] In addition, the current global economic situation and ethical requirements force banks to move towards sustainable development, otherwise they will not be able to maximize shareholder value and improve their own profitability.[244] As traditional banks move towards sustainable banking, improving sustainability reporting frameworks and disclosures will be critical to ensure a comprehensive assessment of environmental, social and governance (ESG) factors, and to enable investors and stakeholders to have a transparent understanding of banks' sustainable finance performance and commitments. In 2022, Surveys of the financial services industry on Deloitte Insights[245] indicate that all organizations, including banks, have begun to prepare for or are ready

[241] Buallay, Amina & Hamdan, Allam & Barone, Elisabetta. (2019). Sustainability reporting and firm's performance: Comparative study between manufacturing and banking sectors. *International Journal of Productivity and Performance Management*. ahead-of-print. 10.1108/IJPPM-10-2018-0371
[242] Boitan, I. A. (2021). Sustainable Banking Systems. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 50-68. Published by London : Routledge. ISBN : 9780367693824
[243] Boitan, I. A. (2021). Sustainable Banking Systems. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 50-68. Published by London : Routledge. ISBN : 9780367693824
[244] Boitan, I. A. (2021). Sustainable Banking Systems. *Finance and Sustainable Development: Designing Sustainable Financial Systems*, pp 50-68. Published by London : Routledge. ISBN : 9780367693824
[245] Deloitte Insights is dedicated to the study of strategic decision making in a changing social environment, covering a range of industries and publishing regular magazines to share the latest research.

to respond to ESG reporting requirements.[246] However, some experts have expressed doubts about the usability and credibility of the report. Due to imperfect legislation, the final standards for collecting and reporting ESG data cannot achieve true fairness.

According to Baldistera's investigation and research in 2023, sustainability reporting in the banking sector (SRBS) can be traced back to the 1990s, which coincides with the peak period of SAR development; whereas, there were only three SRBS reports.[247] During this period, reporting was fully based on the concept of sustainable development, with no legal constraints from the government and regulators; at the same time, due to banks' limited understanding of the environment and society, the content of many reports still tended to focus on financial information.[248] Therefore, sustainability reports during this period did not provide sufficient information to stakeholders.

In the 21st century, the increase in the number of research works on SRBS was not significant until 2008, followed by a moderate growth since 2009.[249] Compared to the previous stage, the number of researches on SRBS started to show an upward trend after the beginning of the 21st century, influenced by the Global Reporting Initiative (GRI).[250] However, before 2008, the research in this field was still in an emerging stage, so the characteristics of the report were

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[246] Deloitte. (August 07, 2023). How Different Industries are Making Strides Towards ESG Preparedness. Retrieved on December 10th, 2023, from https://www.cpapracticeadvisor.com/2023/08/07/how-different-industries-are-making-strides-towards-esg-preparedness/92942/

[247] Baldissera, A. (2023). Sustainability reporting in banks: History of studies and a conceptual framework for thinking about the future by learning from the past. *Corporate Social Responsibility and Environmental Management*, 30(5), 2385–2405. https://doi.org/10.1002/csr.2491

[248] Baldissera, A. (2023). Sustainability reporting in banks: History of studies and a conceptual framework for thinking about the future by learning from the past. *Corporate Social Responsibility and Environmental Management*, 30(5), 2385–2405. https://doi.org/10.1002/csr.2491

[249] Baldissera, A. (2023). Sustainability reporting in banks: History of studies and a conceptual framework for thinking about the future by learning from the past. *Corporate Social Responsibility and Environmental Management*, 30(5), 2385–2405. https://doi.org/10.1002/csr.2491

[250] Baldissera, A. (2023). Sustainability reporting in banks: History of studies and a conceptual framework for thinking about the future by learning from the past. *Corporate Social Responsibility and Environmental Management*, 30(5), 2385–2405. https://doi.org/10.1002/csr.2491

still voluntary, which led to a scarcity of non-financial information disclosure throughout the sector.[251] However, compared to the content of sustainability reports from the previous century, in this stage, the content included more social and environmental impacts related to the daily activities of banks. This is mainly because banks, unlike manufacturing industries, are not a source of pollution and do not directly produce pollutants; at the same time, the vast majority of people's understanding of sustainability has remained focused on the environment. Therefore, the development of SRBS-related research is slow, but many scholars have already started to study this topic, laying the foundation for the rapid development of SRBS in the future.

In 2008, financial institutions in the United States were affected by a massive amount of mortgage loans, leading to a global financial crisis and another global recession.[252] Since 2009, various sectors of society have learned from the lessons of the crisis, and people have begun to think about and pay attention to the social responsibility issues of financial institutions. To avoid future financial crises, the financial industry has emphasized the urgency of implementing sustainable operations and financial strategies. Meanwhile, this year, the green economy has become the mainstream of development, and more and more people are targeting green growth.[253] In addition, the framework of sustainability accounting is constantly being improved at this stage. In order to restore their reputation and social status, banks have increased the disclosure of environmental protection and social responsibility information to meet the current mainstream of development pursued by all sectors of society. Therefore, the research on SRBS during this period had been stimulated by major international events, with a significant increase

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[251] Baldissera, A. (2023). Sustainability reporting in banks: History of studies and a conceptual framework for thinking about the future by learning from the past. *Corporate Social Responsibility and Environmental Management*, 30(5), 2385–2405. https://doi.org/10.1002/csr.2491

[252] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

[253] Asian Development Bank. (March, 2012). World Sustainable Development Timeline. Publication Stock No. ARM124449

in quantity and a gradual expansion of the research scope; however, due to the lack of laws and regulations, its quality is still in the development stage.[254]

Until 2017, the number of published SRBS began to increase significantly.[255] This indicates that with the development and transformation of economies in various countries, people are no longer satisfied with focusing only on economics directly related to environmental protection and social development. During this period, corporate sustainability accounting and reporting has become popular in various industries. Driven by regulators and customer demand for change, banks are having to take on environmental, social, and corporate governance (ESG) responsibilities. In some regions, such as the European Union, mandatory reporting requirements provide a basic framework for banks' sustainability reporting. At the same time, while some regions still lack a robust regulatory system for SRBS, banks have independently published sustainability reports to meet customer needs and maintain their own social competitiveness.

However, a recent study finds that disclosure of sustainability accounting and reporting information by banks has a negative impact on bank performance, which can be demonstrated by some experimental data.[256] In 2021, a group led by Buallay, Amina, and others studied the performance of 882 banks around the world. They analyzed changes in ROA, ROE, and Tobin Q using environmental, social, and governance (ESG) scores as independent variables.[257] The

[254] Baldissera, A. (2023). Sustainability reporting in banks: History of studies and a conceptual framework for thinking about the future by learning from the past. *Corporate Social Responsibility and Environmental Management*, 30(5), 2385–2405. https://doi.org/10.1002/csr.2491
[255] Baldissera, A. (2023). Sustainability reporting in banks: History of studies and a conceptual framework for thinking about the future by learning from the past. *Corporate Social Responsibility and Environmental Management*, 30(5), 2385–2405. https://doi.org/10.1002/csr.2491
[256] Buallay, A. (December 17, 2019). Sustainability Reporting and Firm's Performance: Comparative Study Between Manufacturing and Banking Sectors. *International Journal of Productivity and Performance Management.* Publisher: Emerald Publishing Limited. ISSN: 1741-0401
[257] Buallay, A. (December 17, 2019). Sustainability Reporting and Firm's Performance: Comparative Study Between Manufacturing and Banking Sectors. *International Journal of Productivity and Performance Management.* Publisher: Emerald Publishing Limited. ISSN: 1741-0401

information on ESG scores comes mainly from the bank's annual sustainability report, which includes environmental information such as carbon emissions and resource use, and social information such as human rights and gender.[258] The scores for each project vary by industry. In addition to these obvious data, they also added inflation rate, cost income ratio, asset equity ratio, and effective tax rate. Therefore, they used linear programming to explain how sustainability reporting affects bank performance.[259] According to the results, it is surprising that compared to Tobin Q, ROE and ROA are very sensitive to changes in ESG data; meanwhile, whether in developed or developing countries, the disclosure of sustainability reports is negatively correlated with the overall performance of banks.[260]

There are also some limitations to this experiment. On the one hand, there is a certain risk of inaccuracy in the collection of ESG data; on the other hand, all of this data comes from publicly traded banks, so the impact of private banks is ignored.[261] However, even with the limitations of experimental data, sustainability accounting in banking is still in its early stages of development, so it cannot be completely denied that the negative impact of ESG on bank performance does not exist. Therefore, it is necessary to discuss the current challenges faced by banks. As with most sustainability reporting, SRBS research faces issues such as how to manage

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[258] Buallay, A. (December 17, 2019). Sustainability Reporting and Firm's Performance: Comparative Study Between Manufacturing and Banking Sectors. *International Journal of Productivity and Performance Management.* Publisher: Emerald Publishing Limited. ISSN: 1741-0401
[259] Buallay, A. (December 17, 2019). Sustainability Reporting and Firm's Performance: Comparative Study Between Manufacturing and Banking Sectors. *International Journal of Productivity and Performance Management.* Publisher: Emerald Publishing Limited. ISSN: 1741-0401
[260] Buallay, A. (December 17, 2019). Sustainability Reporting and Firm's Performance: Comparative Study Between Manufacturing and Banking Sectors. *International Journal of Productivity and Performance Management.* Publisher: Emerald Publishing Limited. ISSN: 1741-0401
[261] Buallay, A., Fadel, S. M., Alajmi, J., & Saudagaran, S. (2021). Sustainability reporting and bank performance after financial crisis: Evidence from developed and developing countries. *Competitiveness Review*, 31(4), 747-770. doi: https://doi.org/10.1108/CR-04-2019-0040

the boundaries of corporate responsibility, how to select standard frameworks and meet customer requirements, and whether reporting is mandatory.[262]

First, banks publish sustainability reports mainly to adapt to social trends and meet customer needs, so the reports are developed from external to internal within the organization. This approach is not a way for companies to assume social responsibility, but rather treats sustainability reporting as a short-term strategy for market competition. This is mainly because it focuses more on the information that investors and customers want, thus ignoring the true sustainability indicators within the organization. Therefore, Amr ElAlfy and Olaf Weber[263] suggest that management should develop sustainability strategies from the inside out, i.e., report based on their own conditions rather than focusing solely on external needs.[264] At the same time, they point out that it is more difficult for the banking industry to select environmental indicators than for other industries, such as data on direct energy use and waste generation.[265] Therefore, banking sector may need to measure the environmental impact of their activities by identifying and conducting in-depth research on "the scope of the business, the time span, and the scale of the stakeholders".[266]

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262 ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/

263 Amr ElAlfy works at the College of Business and Economics at Qatar University as an assistant professor of sustainability management, and focuses on sustainability management and corporate reporting frameworks. Olaf Weber Olaf is a CIGI Senior Fellow specializing in sustainability in the banking sector, and he is currently a professor in the School of Environment, Enterprise, and Development at the University of Waterloo.

264 ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/

265 ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/

266 ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/

Second, unlike traditional financial reports, which are mostly focused on investors, sustainability reports have a broader audience.[267] Each stakeholder group has different reporting requirements, requiring organizations to invest significant time and resources in disclosing information. In addition, there is competition among different reporting frameworks, which leads to differences in the selection of frameworks among banking institutions and ultimately to diversification in the form and content of reports. Recently, SASB has proposed and updated reporting standards for commercial banks, mainly based on the GRI framework.[268] The release of the SASB standards has temporarily unified sustainability reporting for the banking industry, but the economic, environmental, and social components are not static. As new indicators emerge, the current framework will inevitably change again.

Third, as with many standards for sustainability reporting, the financial industry is faced with the challenge of whether reporting should be mandatory. Currently, the credibility and accuracy of reports are challenged by high expectations for sustainability disclosure.[269] Voluntary disclosure forces some private banks to formulate various temporary measures to meet people's expectations, which is not conducive to long-term sustainable development. In addition, traditional financial reports are usually presented on an annual, semi-annual, or quarterly basis. As a result, many organizations assume that sustainability reports should also meet this requirement. However, in reality, the government and regulatory agencies do not specify specific units, which leads to confusion in the publication cycle of sustainability reports in the market and

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[267] ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/
[268] ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/
[269] ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/

the inability to achieve comparability.[270] Therefore, the establishment of standardized reporting requirements is essential to achieve transparency and accountability.

In Canada, sustainability accounting and reporting in the banking industry has made some progress. An increasing number of academics have published relevant research in this area. In the absence of uniform global disclosure standards, Canadian regulators and financial organizations have proposed their own approach. In 2010, the Canadian Securities Administrators (CSA) adopted CSA Staff Notice 51-333, Environmental Reporting Guide.[271] It is not a mandatory standard, but it highlights the importance of corporate governance and environmental disclosure.[272] By 2011, the establishment of SASB provided the basic framework and standards for publishing ESG reports for various industries, and the Canadian banking industry gradually began to use it.

According to a 2016 survey conducted by the St. Mary's University of 23 respondents, including banks and credit unions, insurance companies, and other financial institutions, 96% of participants agreed on the importance of measuring internal sustainability performance; however, less than two-thirds of companies have a practical system in place.[273] Also, the survey results shows that the question of mandatory reporting is still controversial, as the proportion of "yes" and "no" is very close. Meanwhile, the vast majority of participants believe that the long-term benefits of publishing sustainability reports outweigh the short-term costs of doing so.[274] While

[270] ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/
[271] Turley-McIntyre, B., Marchl, A., & Stasuik, B. (2016). Sustainability Reporting in Canada's Financial Institutions. *Journal Of Co-Operative Accounting and Reporting*, Volume 4, Issue 1, Spring 2016
[272] Turley-McIntyre, B., Marchl, A., & Stasuik, B. (2016). Sustainability Reporting in Canada's Financial Institutions. *Journal Of Co-Operative Accounting and Reporting*, Volume 4, Issue 1, Spring 2016
[273] Turley-McIntyre, B., Marchl, A., & Stasuik, B. (2016). Sustainability Reporting in Canada's Financial Institutions. *Journal Of Co-Operative Accounting and Reporting*, Volume 4, Issue 1, Spring 2016
[274] Turley-McIntyre, B., Marchl, A., & Stasuik, B. (2016). Sustainability Reporting in Canada's Financial Institutions. *Journal Of Co-Operative Accounting and Reporting*, Volume 4, Issue 1, Spring 2016

this survey is relatively small in scope and number of participants, it highlights the importance that Canadian financial institutions place on sustainability, as well as some of the challenges they face in implementing it. These challenges require them to find appropriate solutions to promote sustainable development.

Furthermore, one of the main functions of the banking industry is to provide financial products to customers. By analogy with the manufacturing industry, the products of the banking industry are equivalent to the final products of the manufacturing industry. If the production and distribution process of this product is green, it will promote the sustainable development of the bank. Green bonds originated from the European market and have since steadily developed in the sustainable finance industry. In 2021, their issuance value has reached $600 million in the world.[275] In fact, green bonds are not the only financial instruments. Since 2016, the entire financial sector has changed. In 2019, Canada introduced Sustainability Linked Loans (SLLs), and local companies have since converted $1 billion of debt into SLLs.[276] Undoubtedly, the promotion of green financial products has provided financial support for the development of sustainability accounting and reporting in the banking industry. It also promotes the improvement of companies' environmental risk management capabilities. Like traditional financial products, green products involve risk assessment and management, and in relation to the risks of environmental and social aspects. In Canadian banking sector, environmental sustainability is a fundamental aspect of Canadian banks' corporate social responsibility initiatives, and banks have implemented internal and external environmental policies, objectives,

[275] Sharma, K. & Brennan, J. (April 21, 2023). Canada: ESG Initiatives Take Hold In Banking Sector. Retrieved on December 10th, 2023, from https://www.mondaq.com/canada/financial-services/1306648/esg-initiatives-take-hold-in-banking-sector

[276] Sharma, K. & Brennan, J. (April 21, 2023). Canada: ESG Initiatives Take Hold In Banking Sector. Retrieved on December 10th, 2023, from https://www.mondaq.com/canada/financial-services/1306648/esg-initiatives-take-hold-in-banking-sector

and procedures to manage their operations.[277] To achieve a net-zero economy by 2050, major banks in Canada have adopted different strategies. [278]

Finally, given the current problems with sustainability accounting and reporting in the banking industry, government agencies and financial organizations should work together to develop standardized reporting frameworks, with a particular focus on measuring performance indicators, so that stakeholders can clearly understand potential risks and opportunities from financial and non-financial reports.[279] Moreover, financial institutions should complement their annual financial reports with a detailed annual impact report that examines and discloses the overall impact of investment portfolios. It should not only include financial indicators such as returns and expenses of investment portfolios, but also detail the specific impact of investment portfolios on the three key areas of environment, society, and corporate governance (ESG). This report not only provides financial institutions with an opportunity to comprehensively assess and disclose the full impact of their investment portfolios, but also provides investors with a clear guide to understanding how their investments may have a positive or negative impact in practice.

In addition, when banks process environmental, social, and governance (ESG) data, they need to ensure that this data is effectively collected, managed, and aggregated. This data should include not only traditional financial indicators such as revenues, expenses, and assets, but also non-financial indicators related to society and the environment. These non-financial indicators can include carbon emissions, employee satisfaction, customer feedback, etc. Therefore, in order

[277] Canadian Bankers Association. (April 30, 2021). Banks and the environment. Retrieved on December 10th, 2023, from https://cba.ca/banks-and-the-environment?l=en-us
[278] Canadian Bankers Association. (October 27, 2023). Banks in Canada Committed to a Net-Zero Economy by 2050. Retrieved on December 10th, 2023, from https://cba.ca/banks-in-canada-committed-to-a-net-zero-economy-by-2050
[279] ElAlfy, A. & Weber, O. (February 12, 2019). Corporate Sustainability Reporting the Case of the Banking Industry. *CIGI Papers Series*, No. 211. Retrieved on December 10th, 2023, from https://www.cigionline.org/publications/corporate-sustainability-reporting-case-banking-industry/

to meet regulatory requirements and maintain a leading position in an increasingly competitive market, the use of digital technology can become a strong support for sustainability standards in the banking industry.[280] This will enable financial institutions to present their ESG performance to stakeholders in an intuitive and understandable way. This transparency not only increases investor confidence, but also opens up new financing channels for financial institutions.

CONCLUSION

In recent years, the concept of sustainable development has received increasing attention. Its evolutionary history reflects the world's dynamic response to the interrelationships between economic activity, environmental impact, and social responsibility. The first half of this report uses historical timelines to illustrate the process of gradual improvement of the concept of sustainability from early environmental disasters. In the face of global challenges such as climate change and resource scarcity, sustainable development has become a key way to address these issues.

As the extension of the concept of sustainable development, the sustainability accounting reflects the global commitment to address the challenges of sustainable development during the evolution. In future development, sustainability accounting will respond to technological advances, strengthen global cooperation on standardized reporting, and meet the growing expectations of investors by prioritizing environmental, social, and corporate governance (ESG) factors. At the same time, sustainability accounting is leading the way to more transparent, comprehensive, and sustainable practices. At present, influenced by economic development and productivity levels, the level of development of sustainability accounting in different countries around the world is uneven. Governments and educational institutions in various regions have

[280] Spörl, T. (May 2, 2022). ESG: What Banks Can Expect Due to The Sustainability Criteria. Retrieved on December 10th, 2023, from https://www.knowis.com/blog/esg-what-banks-awaits-due-to-the-sustainability-criteria

begun to improve the professional skills and awareness of accounting personnel through enhanced education and training, strengthen the formulation and implementation of policies and regulations, and promote international cooperation, thus gradually improving the level of sustainability accounting development in various countries around the world. For instance, in Canada, for future research, some believe it is possible to delve deeper into the experiences of Canadian sustainable development accounting scholars, including their attitudes toward mainstream research and their level of participation in teaching and practice.[281]

The 2008 financial crisis prompted a reassessment of the role and responsibilities of the banking industry, leading to a surge in sustainability reporting. From early voluntary reports focused on the concept of sustainable development to the more recent integration of ESG factors, this evolution highlights the industry's adaptation to the ever-changing landscape of global sustainability. While the Canadian banking industry has made progress, it faces challenges in selecting mandatory reporting and reporting frameworks. The introduction of green financial products, such as green bonds and loans linked to sustainable development, has boosted the sustainable finance market. However, the industry is still grappling with issues of comparability, standardization, and broader challenges in managing the expectations of different stakeholders. In summary, as the banking industry moves forward on its sustainable development journey, the way forward still needs to strike a true balance between meeting external expectations and promoting true internal sustainable development practices, not only to contribute to global sustainable development, but also to enhance competitiveness and resilience in the ever-changing financial environment.

[281] Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a Better Understanding of Sustainability Accounting and Management Research and Teaching in North America: A Look at the Community. *Sustainability Accounting, Management and Policy Journal*, 11(6), 985-1007. doi: https://doi.org/10.1108/SAMPJ-08-2019-0311

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