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The Role of Accounting in Conservation Impact Bonds: The Case of Carolinian Canada, Western University, London, Canada

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The Role of Accounting in Conservation Impact Bonds: The Case of the Carolinian Canada Coalition

Dr. Julie Bernard, Bhavya Vora, Dr. Diane-Laure Arjaliès



Land Acknowledgement

The Ivey Business School, Western University (Ontario, Canada) is located on the traditional lands of the Anishinaabek (Ah-nish-in-a-bek), Haudenosaunee (Ho-den-no-show-nee), Lunaapéewak (Len-ah-pay-wuk), and Attawandaron (Add a-won-da-run) peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum.

With this, we respect Indigenous nations' longstanding relationships with this land, as they are the original caretakers. We acknowledge historical and ongoing injustices that Indigenous Peoples (e.g., First Nations, Métis, and Inuit) endure in Canada, and we accept responsibility as a public institution to contribute towards revealing and correcting miseducation as well as renewing respectful relationships with Indigenous communities through our teaching, research, and community service.





About the authors

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Diane-Laure is an Associate Professor (with tenure) belonging to the 'Sustainability,' 'Managerial Accounting and Control,' and 'General Management groups at the Ivey Business School – a cross-disciplinary appointment that reflects her research and teaching. She is the founder and lead of the Sustainable Finance Lab, an Impact Lab from the Centre for Building Sustainable Value. She ambitions to push the boundaries of knowledge and practice by investigating how fashioning new devices and collective actions can help transform financial markets towards sustainability. She is currently leading an extensive research program on conservation finance, aiming to channel capital toward protecting ecosystems, notably through conservation impact bonds. Her work in this area has won her several academic, teaching, and professional prizes.

DR. JULIE BERNARD

Julie has been a postdoctoral scholar in the Sustainable Finance Lab since September 2022. Her research project aims to understand and facilitate the replication and scaling of a highly innovative Canadian financial product that applies finance for nature-based carbon mitigation. Her research has been funded by various organizations, including Carbon Solutions @ Western and the Canadian Academic Accounting Association (CAAA). She graduated with a Ph.D. from Université Laval in 2022. Her research interests include responsible investment and shareholder activism, specifically the integration of environmental, social and governance criteria, proxy voting and their role in the fight against climate change.

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The CPA Ontario Centre for Accounting and the Public Interest funded this report.

CPA ONTARIO CENTRE FOR ACCOUNTING AND THE PUBLIC INTEREST

The CPA Ontario Centre for Accounting and the Public Interest promotes accounting research and teaching at the Ivey Business School, supporting the School's Managerial Accounting and Control faculty and providing a new forum for innovative thinking and thought leadership concerning public interest issues. The Centre fosters the development of breakthrough research and contributes to today's leading accounting and management journals.

Under the guidance of the Advisory Board, the Centre enhances Ivey's reputation as one of the top business schools in the world.

With gracious financial support from CPA Ontario, the Centre continues to grow and move forward.

IVEY SUSTAINABLE FINANCE LAB

The financial system plays a critical role in sustainable development. As the Canadian Expert Panel on Sustainable Finance outlines, Canada's transition towards sustainability will require "...a sea change in the interactions between innovation, policy and regulation, consumer behaviours, risk management, and investment patterns. In each area, the financial system is critical in directing capital flows, managing complex risks, and unlocking opportunity."

The Expert Panel defined sustainable finance as "capital flows, risk management activities and financial processes that assimilate environmental and social factors to promote sustainable economic growth and the long-term sustainability of the financial system." The rise of sustainable finance is already significantly influencing the behaviours and practices of financial markets. This significant growth in sustainable capital - and the accompanying financial sector expertise, ingenuity, and influence - creates exciting new opportunities for finance to address complex sustainability challenges.

The Sustainable Finance Lab is taking advantage of these opportunities, supporting the development of new innovative financial instruments that can catalyze the transition to sustainable development. Research focuses on frontier applications of sustainable finance in Canada – including ecosystem conservation, green infrastructure, blended finance, and investment in the success of Indigenous communities.



IVEY BUSINESS SCHOOL, WESTERN UNIVERSITY

The Ivey Business School at Western University is Canada's leading real-world, case-based business education provider. Drawing on extensive research and business experience, Ivey faculty provide the best classroom experience, equipping students, through Case-Method Learning, with the skills and capabilities they need to tackle today's leadership challenges. Beyond the classroom, Ivey students gain a global perspective on business issues through international study trips, exchanges, and practicums.



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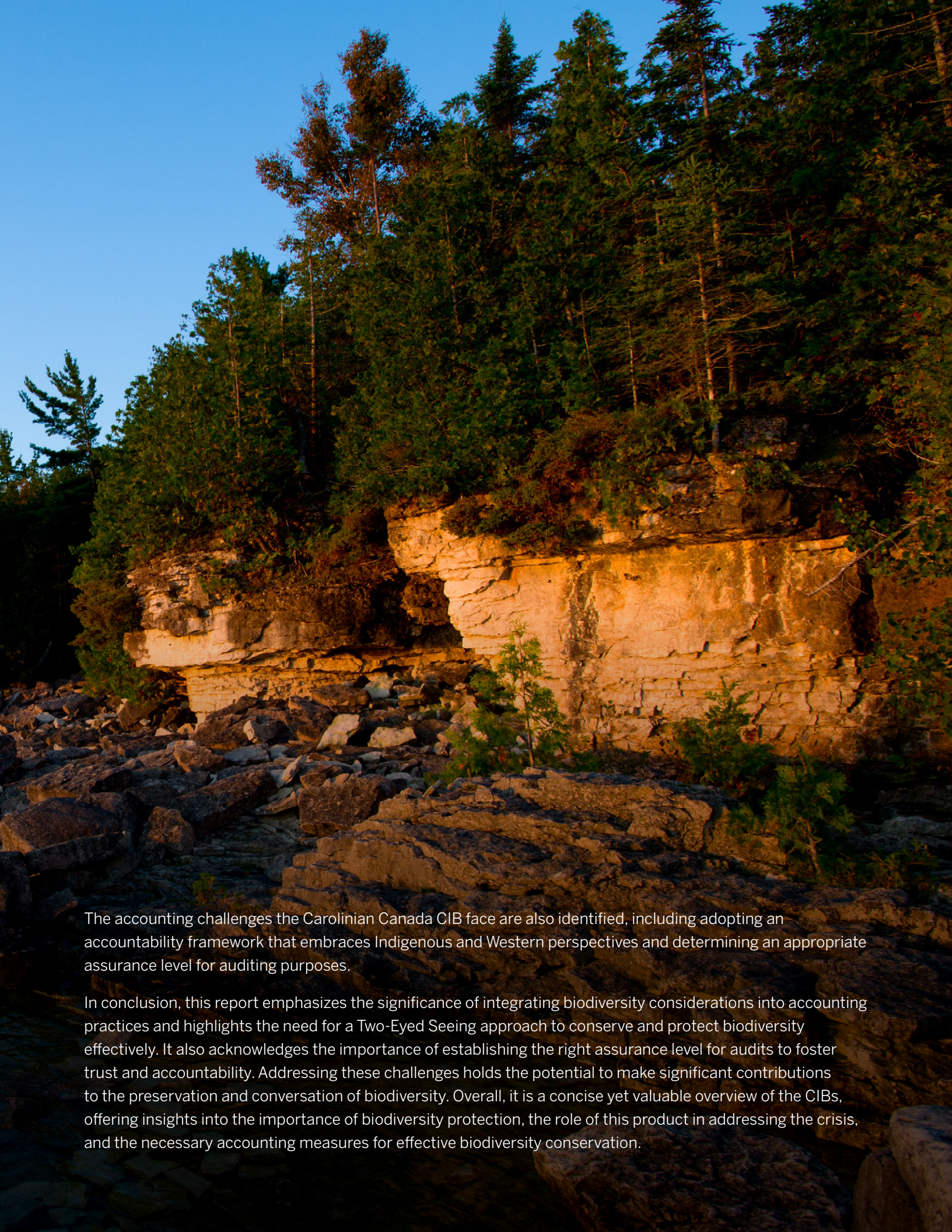


Executive summary

This executive summary offers a comprehensive overview of the document's key points, delving into the significance of safeguarding biodiversity for society and the economy. This report begins by highlighting Canada's efforts at biodiversity conservation through various initiatives. Moreover, it underscores the vital role Indigenous communities play in protecting biodiversity and preserving their traditional knowledge.

The report investigates the role of Conservation Impact Bonds (CIBs) as a potential solution to the biodiversity loss crisis. The CIB is a new "made in Canada" conservation finance instrument that enables collaboration and investment to manage healthy landscapes in the spirit and practice of reconciliation. The CIB model is a pay-for-success conservation finance mechanism driven by the partnership to reverse the trend of habitat loss by accelerating healthy landscapes, advancing Indigenous Reconciliation, and empowering the human-nature relationship. It is a place-based effort that leverages cross-sector and cross-cultural collaboration to support a holistic ecosystem approach aligned with local community goals.

The report uses the unique Carolinian Canada's CIB pilots implemented in the Carolinian zone of Southwestern Ontario, Canada, to illustrate this product's potential in the biodiversity and climate crisis we are currently facing. Additionally, it introduces an innovative accounting system employed by Carolinian Canada, focusing on the importance of a Two-Eyed Seeing approach which integrates Indigenous and Western perspectives in the metrics and impact assessment of this pay-per-performance product.



The accounting challenges the Carolinian Canada CIB face are also identified, including adopting an accountability framework that embraces Indigenous and Western perspectives and determining an appropriate assurance level for auditing purposes.

In conclusion, this report emphasizes the significance of integrating biodiversity considerations into accounting practices and highlights the need for a Two-Eyed Seeing approach to conserve and protect biodiversity effectively. It also acknowledges the importance of establishing the right assurance level for audits to foster trust and accountability. Addressing these challenges holds the potential to make significant contributions to the preservation and conversation of biodiversity. Overall, it is a concise yet valuable overview of the CIBs, offering insights into the importance of biodiversity protection, the role of this product in addressing the crisis, and the necessary accounting measures for effective biodiversity conservation.

1. Why does the protection of biodiversity matter to society and the economy?

1.1. WHAT IS BIODIVERSITY?

Biodiversity, derived from the term “biological diversity,” encompasses the multitude of lives across all its dimensions, ranging from genetic diversity to entire ecosystems. It includes the intricate web of evolutionary, ecological, and cultural processes that uphold and support life.

Biodiversity holds immense significance across various aspects of our lives. We appreciate biodiversity for numerous reasons, some practical and others intrinsic. This implies that we recognize the value of biodiversity for its contributions to humanity and its inherent worth. Useful values encompass the necessities we derive from biodiversity and ecosystem services, such as food, fuel, shelter, and medicine. Intrinsic value refers to the inherent worth of biodiversity, independent of its value to any specific entity. Intrinsic values include well-being and spiritual awakening while in contact with nature. This philosophical concept can be seen as the inalienable right to exist.

An ecosystem service refers to any favourable advantage wildlife or ecosystems offer humans. These benefits can manifest in various forms, either directly or indirectly, substantial.ⁱ Ecosystems and their services are critical in providing vital services such as pollination, seed dispersal, climate regulation, water purification, nutrient cycling, and agricultural pest control.ⁱⁱ For example, in 2020, the World Economic Forum reported that around 50% of the world’s gross domestic product (GDP), roughly USD 50 trillion, is linked to nature.ⁱⁱⁱ Another example of biodiversity and ecosystem services is their importance to food security. While there are estimated to be 50,000 edible food species, today, just 15 crops provide 90% of the world’s food energy intake, with rice, maize and wheat making up to sixty percent of this total.^{iv}

Moreover, biodiversity harbours potential benefits that are yet to be fully realized, such as discovering new medicines and other unknown services. In addition, cultural value is also ascribed to biodiversity by humans, often for spiritual or religious reasons, as is the case of Indigenous communities of Canada.

The diverse values attributed to biodiversity are crucial as they shape the conservation decisions made by people daily. Furthermore, the importance of biodiversity can be understood through the lens of the relationships we cultivate with one another and the natural world. We may value biodiversity due to its influence on our identities, interpersonal connections, and social norms. These relational values form part of individuals’ or communities’ sense of well-being, responsibility towards, and relationship with the environment.

Biodiversity loss is a pressing crisis in the Canadian context, posing significant challenges to the nation’s natural ecosystems and the services they provide. Canada’s vast and diverse landscapes, from pristine forests and coastal areas to expansive wetlands and tundra regions, harbour unique plant and animal species. However, human activities, including habitat destruction, pollution, climate change, and invasive species, have contributed to the rapid decline in biodiversity across the country.^v This biodiversity loss has severe consequences for both the environment and society. It disrupts delicate ecological balances, reduces ecosystem resilience, and threatens the provision of vital ecosystem services such as clean air and water,

soil fertility, and climate regulation.^{vi} Moreover, Canada's Indigenous communities, who have longstanding connections with the land and hold valuable traditional knowledges, are deeply impacted by biodiversity loss, undermining their cultural heritage and sustainable practices.

Experts caution that failure to act promptly to safeguard our environment could result in a dreadful future marked by deteriorating health, mass extinction upheavals caused by climate disruption, and resource conflicts in the coming century. Without immediate action, countries, including Canada, cannot fulfill their agreed-upon biodiversity objectives, such as reserving a minimum of 30% of their territories by 2030.^{vii}

1.2. CANADA'S COMMITMENT TO THE PROTECTION OF BIODIVERSITY

Canada has stepped up its efforts to conserve nature in the last few years. The federal government of Canada has set the goal of preserving 30 percent of Canada's land and water by 2030 because science shows that nature needs our help to reverse the decline in biodiversity, better fight climate change, and maintain a robust and sustainable economy.^{viii} The country would more than double the amount of land that is now protected, from 13.5% to 29.3%, just falling short of the 30% target, and the amount of marine protected areas would rise from 13.9% to 30.4%, exceeding the 30% target, if all the potential sites are approved by 2030. There are numerous opportunities for protection across Canada that are currently underway or have already been committed to, as well as Indigenous-led conservation initiatives.^{ix}

Additionally, Parks Canada, Natural Resources Canada, and the National Research Council of Canada have identified five new Other Effective area-based Conservation Measures (OECMs) in their federal land holdings. OECMs exemplify a strategic approach to attaining enduring and efficient biodiversity conservation, even within land management frameworks encompassing diverse objectives. These measures serve as an illustrative paradigm of sustainable land management and stewardship practices, enabling the flourishing of natural ecosystems. OECMs have demonstrated the capacity to yield comparable biodiversity outcomes to those observed in formally designated protected areas.^x By exemplifying how human activities can be harmoniously aligned with nature's vitality, OECMs showcase the feasibility of achieving sustainable land use practices while concurrently preserving biodiversity. More than 15,000 hectares have been added to Canada's Protected and Conserved Areas Database because of this coordinated government effort, furthering the country's conservation objectives.^{xi} The federal government has protected 21,100 hectares of territory under the OECMs, beginning with the Department of National Defense's recognition of the natural surroundings of the Canadian Forces Base Shilo in Manitoba in 2019.

In terms of international action on biodiversity, the December 2022 in-person meeting of COP 15¹ was a pivotal moment for the establishment of a post-2020 global biodiversity framework, building on the Strategic Plan for Biodiversity set out from 2011 to 2020. The Kunming-Montreal Pact signed by 196 countries marked a watershed moment for biodiversity action, including an agreement to conserve 30% of the Earth for nature by 2030.^{xii}

1 COP 15 is the United Nations conference of the parties to the United Nation Convention on Biological Diversity

“The job of addressing the twin crises of biodiversity loss and climate change is a task that requires everyone to do their part. The federal government is leading by example, looking through all our assets to see which federal land and water can achieve real conservation results. These efforts are helping us reach our goals to conserve 30 percent of land and inland water by 2030—and in this work, every effort counts.”

– The Honourable Steven Guilbeault, Minister of Environment and Climate Change and Minister responsible for Parks Canada Agency

1.3. THE ROLE OF INDIGENOUS COMMUNITIES IN PROTECTING BIODIVERSITY

While biodiversity is under threat globally, so are Indigenous communities and rural, small-scale farmers who also play a vital role in conserving nature and preserving strong knowledge of healthy natural systems.

Preserving forests is crucial in addressing the climate crisis and safeguarding millions of endangered species. Forests are essential to mitigating the climate crisis and protecting endangered species, with Indigenous communities in Canada playing a valuable role as forest stewards. The Great Bear Rainforest² in British Columbia serves as an example. The Coastal First Nations³ have been instrumental in conserving this ecologically significant region. Through active land and resource management involvement, they have implemented comprehensive stewardship plans prioritizing ecological integrity, sustainable harvesting, and cultural preservation. This holistic approach, blending traditional knowledge with modern conservation principles enhances biodiversity, preserves critical habitats like the Spirit Bear, and maintains healthy forest ecosystems. The collaboration between Indigenous communities, government agencies, and non-profit organizations in the Great Bear Rainforest exemplifies Indigenous leadership and contributions to effective forest stewardship and sustainable conservation practices in Canada. Despite representing less than 5% of the global population, these communities, totalling 370 million, manage or hold tenure over a quarter of the world’s land surface and support approximately 80% of the planet’s biodiversity.^{xiii} Deforestation rates in their territories are up to 50% lower than in other areas.

2 For more information about the Great Bear Rainforest: <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/great-bear-rainforest>

3 The Coastal First Nations are a unique alliance of nine Nations living on British Columbia’s North and Central Coast and Haida Gwaii. Each Nation has its own distinct culture, governance and territory. These nine Nations are Metlakatla, Gitxaala, Heiltsuk, Nuxalk, Gitga’at, Kitasoo/Xai’xais, Wuikinuxv, Skidegate, Old Massett and the Council of the Haida Nation.

According to the Canadian Parks and Wilderness Society (CPAWS) research, the highest total area of potential protected terrestrial regions is found in seven important provinces and territories: Yukon, the Northwest Territories, Nunavut, Quebec, Ontario, Manitoba, and British Columbia.^{xiv} The likelihood that Canada will fulfill its pledge - to safeguard 30% of land and ocean in Canada by 2030 hinges on its political will, long-term financial commitment, and readiness to prioritize Indigenous-led conservation.

Indigenous-led projects comprise a significant share of the possible conservation areas under consideration.^{xv} This raises the standard for engagement with Indigenous Nations in the crucial work of slowing down and reversing biodiversity loss in Canada, setting a high bar for federal, provincial, and territory governments.

“With the ambition and leadership, we’re witnessing from Indigenous communities and commitments in place from the federal government to fund and support this critical work, what’s urgently needed at this point is a significant shift in how effectively – and how quickly – all relevant agencies and governance partners are engaging and collaborating on conservation. Suppose we can get provinces and territories on the same page on this work’s critical importance and prioritizing Indigenous-led conservation. Canada will be well-positioned for a successful, nature-positive future in that case.”

- Sandra Schwartz, CPAWS National Executive Director.

For the first time, the CPAWS has published a study outlining a strategy to help the nation protect 30% of Canada’s land and ocean by the decade’s end.^{xvi} To implement current land and ocean protection projects and pursue new opportunities, especially Indigenous-led conservation initiatives, success relies on stronger political will and quicker government action.

1.4. IMPLICATIONS OF THE BIODIVERSITY LOSS CRISIS FOR THE ACCOUNTING AND FINANCIAL SECTORS

As investor demand for sustainable finance continues to increase, the sustainable finance sector – comprising green, social, and sustainability bonds—is projected to reach \$1 trillion this year.^{xvii} However, some experts are apprehensive about these bonds, as they need a comprehensive system to measure the environmental impact of their financial projects. As a result, there are concerns that these bonds may prioritize greenwashing over genuine, meaningful sustainability initiatives.

Nature-positive solutions will create USD 10.1 trillion in business opportunities and 395 million jobs through critical sector transition.^{xviii} Investments in ecosystem restoration provide, on average, 3.7 times as many jobs as oil and gas production investments.^{xix} Nature-based solutions, such as afforestation, can provide 37% of the required emissions reductions to reach net zero by 2030, constituting a cost-effective approach to keeping in line with the Paris Agreement.^{xx} However, such solutions must be more utilized. They are under-represented

in the net-zero plans of investors, governments, and global corporations. Only 3% of the required finance for nature-based solutions is currently being met.^{xxi}

As an enabler of economic activity, the financial sector has an essential role to play in addressing this crisis and achieving the shared vision of the Global Biodiversity Framework to be adopted at COP15: putting the world on a path to reversing nature loss by 2030, and “living in harmony with nature” by 2050.^{xxii}

Yet, today, a dominant proportion of global financial flows supports activities that harm, rather than protect, nature. Finance aiming to create positive outcomes for nature represents a small fraction of overall flows.^{xxiii} There needs to be more consideration in financial policymaking and investment decision-making of the need to protect, regenerate, and sustainably use nature. Increasingly, political leaders, financial organizations and investors step up to address this challenge.^{xxiv}

However, voluntary action can only partially bear full and sustained results. From the viewpoint of the financial sector, a robust agreement would: emphasize the imperative of aligning financial flows with the shared vision, goals and targets of the Global Biodiversity Framework, promote the assessment and disclosure of nature-related risks, dependencies and impacts (particularly for large and transnational businesses and financial organizations, as well as others with significant risks, dependencies and effects on nature); and enable the development of a global pipeline of nature-positive projects and investments.^{xxv}

As investor demand skyrocketed, innovation in accounting standards, or the lack of it, has made it difficult to quantify and report on the financial and non-financial impacts of business operations on biodiversity.^{xxvi} The effect of various business activities cannot be compared, and it is challenging to combine data from multiple organizations because there need to be standardized measures for quantifying biodiversity impact. It entails evaluating ecosystems’ immediate and indirect advantages, but valuing biodiversity can be difficult.^{xxvii} The complete economic worth of biodiversity may be easier to estimate with standardized valuation techniques.

Additionally, this space has limited development, disclosure, and reporting.^{xxviii} It can be challenging for investors, clients, and other parties to evaluate a company’s environmental effects because many need to share information about their impact on biodiversity. It can be challenging to assess the correctness and dependability of the data provided on the impact of biodiversity in the absence of defined reporting standards.

Investors have demonstrated significant interest in nature-based solutions; however, the need for appropriate accounting standards poses a challenge. Currently, the services nature provides to Canadians are only sometimes valued in investment decisions, asset management, or financial and non-financial reporting.^{xxix} Consequently, economic choices often contribute to the degradation of natural assets, including rivers, wetlands, and forests.^{xxx} To address the pressing climate change and biodiversity loss crises, the United Nations has called on G20 countries to triple their investment in nature-based solutions by 2030.^{xxxi} However, Canada’s accounting rules hinder the reflection of the values identified by economists in financial reports. While existing non-financial standards such as Sustainability Accounting Standards Board and Global Reporting Initiative have been developed, they need to be improved to capture the complexities of biodiversity. As a response, the Task Force on Climate-related Financial Disclosures (TCFD) was introduced to address climate risks. Building upon this framework, the Task Force on Nature-related Financial Disclosures (TNFD) was established, encompassing the same pillars as the TCFD but focusing on nature-related risks. Nonetheless, it is crucial to note that the TNFD lacks a specific Indigenous lens, highlighting the need for further considerations and inclusivity in accounting frameworks.

TASKFORCE FOR NATURE-RELATED FINANCIAL DISCLOSURE (TNFD)

Stephanie Hunter, Research Assistant

Launched in June 2021, the Task Force on Nature-related Financial Disclosures (TNFD) is a global market-led initiative focused on developing an integrated risk management and disclosure framework for organizations to report and act on evolving nature-related risks and opportunities.^{xxxii} The Taskforce comprises 40 individual Taskforce Members representing financial institutions, corporates, and market service providers, including Blackrock, UBS, Nestle, Deloitte, and Moody's executives.^{xxxiii}

The TNFD aims to inform organizations how nature affects financial performance, understand the long-term risks associated with nature-related decisions,^{xxxiv} and shift global financial flows from nature-negative to nature-positive.

The TNFD was launched from the TCFD (Taskforce for Climate-Related Financial Disclosure), focusing on climate risk management and disclosures while considering additional disclosures needed to adapt to the "nature" context.^{xxxv} This nature-centred approach is critical to shift from harm-reduction to nature-positive outcomes.

The framework's objectives are:

- Alignment between the emerging global reporting baseline (under the ISSB) and existing practice standards.
- Adaptability with the approach to materiality to accommodate the regulatory requirements of reports from various organizations.
- Action by companies and financial institutions to begin reporting nature-related dependencies, impacts, risks, and opportunities.
- Ambition to provide a structured path to increase disclosure over time while recognizing that incorporating nature-related issues is new to many organizations.^{xxxvi}

The open innovation approach to the TNFD involves releasing 'beta version' prototypes of the framework.^{xxxvii} Each version receives pilot testing and feedback from market participants and other stakeholders. The TNFD's first complete recommendation, because of these earlier beta versions, is anticipated for September 2023.^{xxxviii} The beta frameworks for TNFD have been viewed by over 60,000 stakeholders in over 140 countries since the release of v0.1. in March 2022.^{xxxix} Revisions to newer versions of the framework include topics like scenario development, the scope of disclosures, approach to materiality, defining "nature-positive," and sector-specific guidance.^{xl}

2. The role of Conservation Impact Bonds (CIBs) in addressing the biodiversity loss crisis: The Example of Carolinian Canada

2.1. WHAT ARE CONSERVATION IMPACT BONDS (CIB)?

A social impact bond (SIB) is a collaboration to enhance social outcomes for service consumers. Only when consequences are realized will the service be compensated. Investors usually will only get all or any of their money back if the targets are met. Impact bonds transfer government or donor agency risk to the investor(s). Contracts can be set up so that the return is proportional to how well the goal was achieved. Impact bonds require a careful and professional evaluation.^{xli}

Conservation impact bonds (CIB) are a form of SIB targeting conservation outcomes. A CIB is a financial instrument to fund conservation projects that generate measurable environmental and social outcomes. They work by attracting private investors who provide upfront funding for a conservation project, with the promise of financial returns if the project achieves specific ecological targets. CIBs can be seen as a pay-for-success model, where investors are incentivized to fund conservation efforts with proven success and measurable impact.

2.2. A SUCCESSION OF PILOTS DEVELOPED IN THE CAROLINIAN ZONE, SOUTHWESTERN ONTARIO, CANADA

Despite being the most biodiverse region in the nation, the Carolinian Zone ecoregion in Canada is in danger.^{xlii} Its distinctive flora and wildlife are mostly confined to this area, making it a crucial and imperilled environment. In addition to providing drinking water for 11 million people and holding a fifth of the world's freshwater, the Carolinian Zone is home to a sizable number of species in danger. Despite making up only 0.25 percent of all of Canada, the area is home to approximately a quarter of the nation's population, resulting in extensive urbanization and the destruction of natural ecosystems during the previous three centuries.

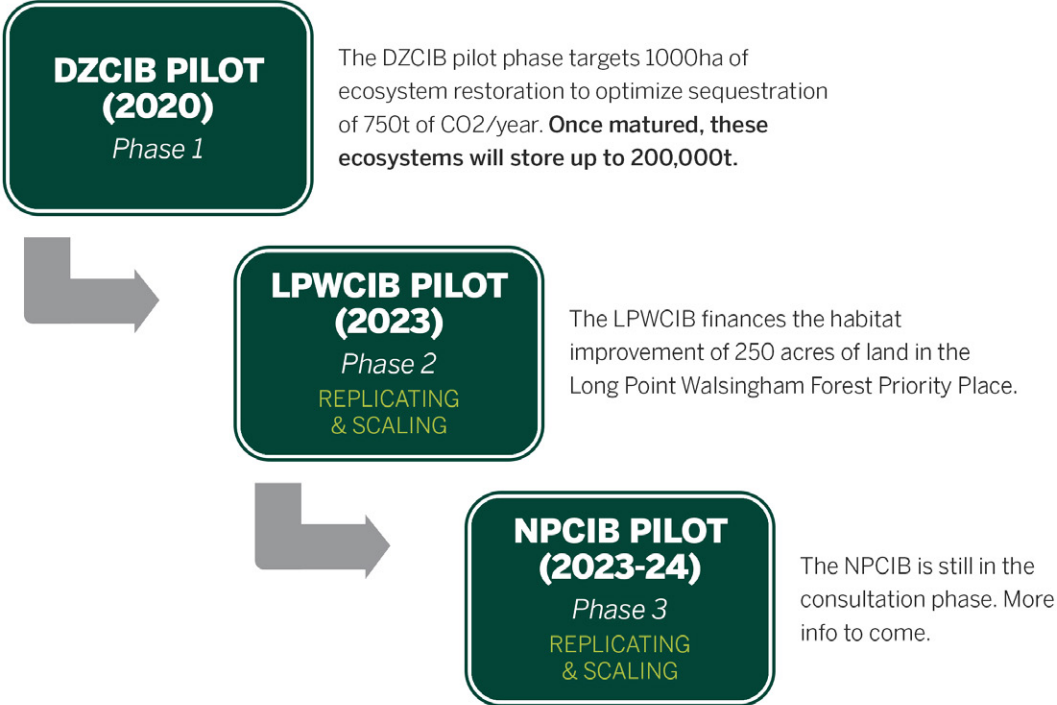
The 400 hectares of the Carolinian zone in southwest Ontario are part of the Carolinian Canada Conservation Impact Bond (CC-CIB), the first in Canada.^{xliii} This ground-breaking financial instrument has been created through the cooperation of conservation organizations, First Nations, social finance organizations, and the Sustainable Finance Lab, Ivey Centre for Building Sustainable Value. Its goal is to improve the ecosystem's health and natural infrastructure. One of North America's most fragile and distinctive ecosystems exist in this area. To finance conservation and community objectives, the organization hopes to generate \$3 million.

The Deshkan Ziibi Conservation Impact Bond (DZCIB), introduced in March 2020, is the first phase of Carolinian Canada's CIB pilot programme, followed by the Long Point Walsingham Conservation Impact Bond (LCIB) (see Figure 1). The DZCIB represents a systemic multi-partners co-creation project grounded in systems thinking. By fostering a powerful network of interactions, the project was able to address complex environmental problems using an innovative framework and systems approach, thus creating synergy and a

shared worldview.⁴ Following the footsteps of the DZCIB's phase I, the LCIB will engage with impact investors, habitat partners, and outcomes payers to facilitate the renewal of identified habitats within the Carolinian Zone.^{xiv} Over 50 initiatives to support healthy landscapes in the area have been made possible by the DZCIB pilot. These measures have produced several economic, community, and environmental advantages. For instance, they have improved 69 hectares (171 acres) of habitat in Southern Ontario, planted more than 39,000 native plants there, and engaged over 450 people in outdoor learning and enjoyment.

This habitat regeneration program will be primarily concerned with protecting the habitats of the Carolinian Zone's 30 identified Species-at-Risk. The second pilot LCIB will concentrate on obtaining funds to repair the habitat of 250 acres of land in the Long Point Walsingham Forest Priority Place. A priority place is defined as being "an area of high biodiversity value that is seen as a distinct place with a common ecological theme by the people who live and work there."^{xxiv} The selection of the Long Point Walsingham Forest Priority Place, situated in the southern Ontario region encompassing Norfolk, Halton, and Niagara, was based on several key factors. This area was identified as a priority due to its notable characteristics, including a rich biodiversity, numerous species at risk, and a concentration of active and committed conservation organizations. These unique circumstances associated with the Long Point Walsingham Forest Priority Place offer intriguing prospects and favourable conditions for the restoration and expansion of natural capital.

FIGURE 1. THE THREE PILOTS OF THE CONSERVATION IMPACT BOND



4 Further information on operationalizing plural valuations and decolonizing principles of the DZCIB that are percolating through the LCIB, see the report accessible here: <https://caroliniancanada.ca/dzcib/report>

THE ROLE OF THE SUSTAINABLE FINANCE LAB, IVEY BUSINESS SCHOOL

Leading the way in building a more sustainable economy, Ivey Business School's award-winning Sustainable Finance Lab is leading the way in building a more sustainable economy through systems innovation, community-based participatory action research, and identifying ways to drive capital in support of sustainable development.

Housed in the School's Centre for Building Sustainable Value (BSV), the Sustainable Finance Lab is one of the Centre's four impact labs empowering leaders to transform business and society in a world where sustainability is fundamental to organizational success and societal prosperity. The Lab supports the creation of new financial instruments and accounting/incentive systems that help channel private and public capital toward financing green infrastructure and resilient communities to address climate change and the biodiversity loss crisis (e.g., regenerative farming, conservation).

It is a Living Lab: an open innovation ecosystem in real-life environments using iterative feedback processes throughout a lifecycle innovation approach to creating sustainable impact. It focuses on co-creation, rapid prototyping and testing, and scaling-up innovations and businesses, providing (different types of) joint value to the involved rightsholders and stakeholders.

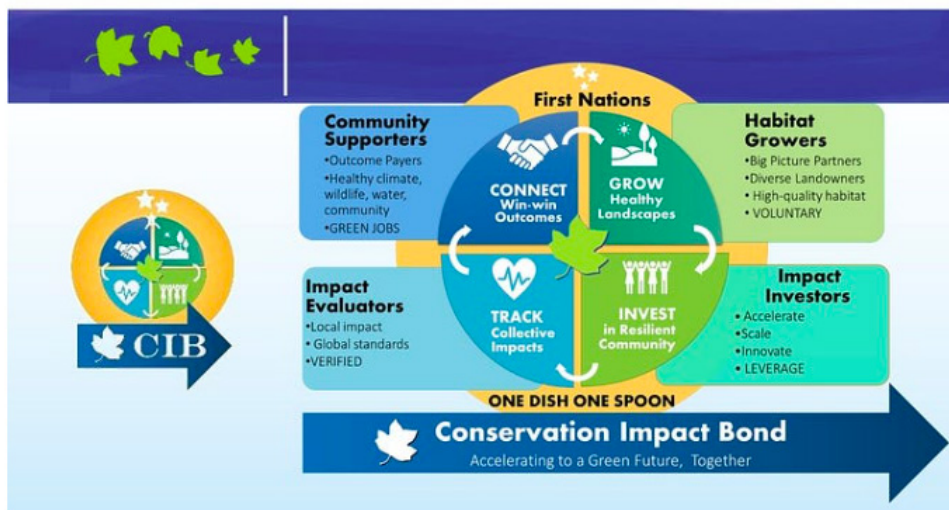
The Lab aims to include marginalized communities' perspectives to ensure the transition and adaptation to climate change combines social justice and economic growth and benefits from the insights and expertise these communities bring. The Lab thus strongly focuses on intersectionality, particularly actions supporting reconciliation, decolonization, and fair relations with Indigenous communities. In addition to hosting Indigenous students through Western's Head and Heart Indigenous Research Fellowship program, the Lab often works with Indigenous communities to develop and pilot projects and products.

One of the largest and most successful pilots is the Deshkan Ziibi Conservation Impact Bond (DZCIB), a partnership between Ivey's Sustainable Finance Lab, Deshkan Ziibiing (Chippewas of the Thames First Nation), VERGE Capital, Thames Talbot Land Trust, and Carolinian Canada Coalition. The DZCIB is an innovative financial solution that is one of the first of its kind in the world. It was developed to stimulate capital to reverse habitat loss and accelerate growth and long-term stewardship of healthy landscapes.

Indigenous communities play a significant role in determining the future of these lands and natural resources because the landscapes in Canada are their ancestral homelands.^{xlv} The Carolinian Canada CIB's emphasis on re-establishing links with the land and Indigenous peoples and their immense array of in-depth ecological knowledge this brings are essential to the process of rapprochement.

The CIB-funded initiatives are expected to provide measurable environmental and social outcomes, which will be assessed using an impact assessment framework. The LCIB will likely serve as a model for other places experiencing similar environmental difficulties and looking for new methods to fund conservation projects. Both CIBs are novel financing models that bring together various rightsholders and stakeholders, including conservation organizations, First Nations, social finance institutions, and government agencies, to achieve conservation and community results.

FIGURE 2. PARTNERS IN THE CAROLINIAN CANADA'S CONSERVATION IMPACT BOND



Source: Carolinian Canada, 2020

2.3 A UNIQUE ACCOUNTING SYSTEM

2.3.1. RELATIONAL ACCOUNTABILITY THROUGH TWO-EYED SEEING

Creating an ethical and safe space that facilitates cross-sectoral conversations focusing on Indigenous collaborators is crucial to initiate the process. Ethical space is a concept adapted by Cree scholar Willie Ermine of Sturgeon Lake First Nation and Blackfoot Elder Dr. Reg Crowshoe from Pikani Nation. It cultivates deep respect for different knowledges and worldviews and requires entering dialogue transparently, honestly, and authentically.

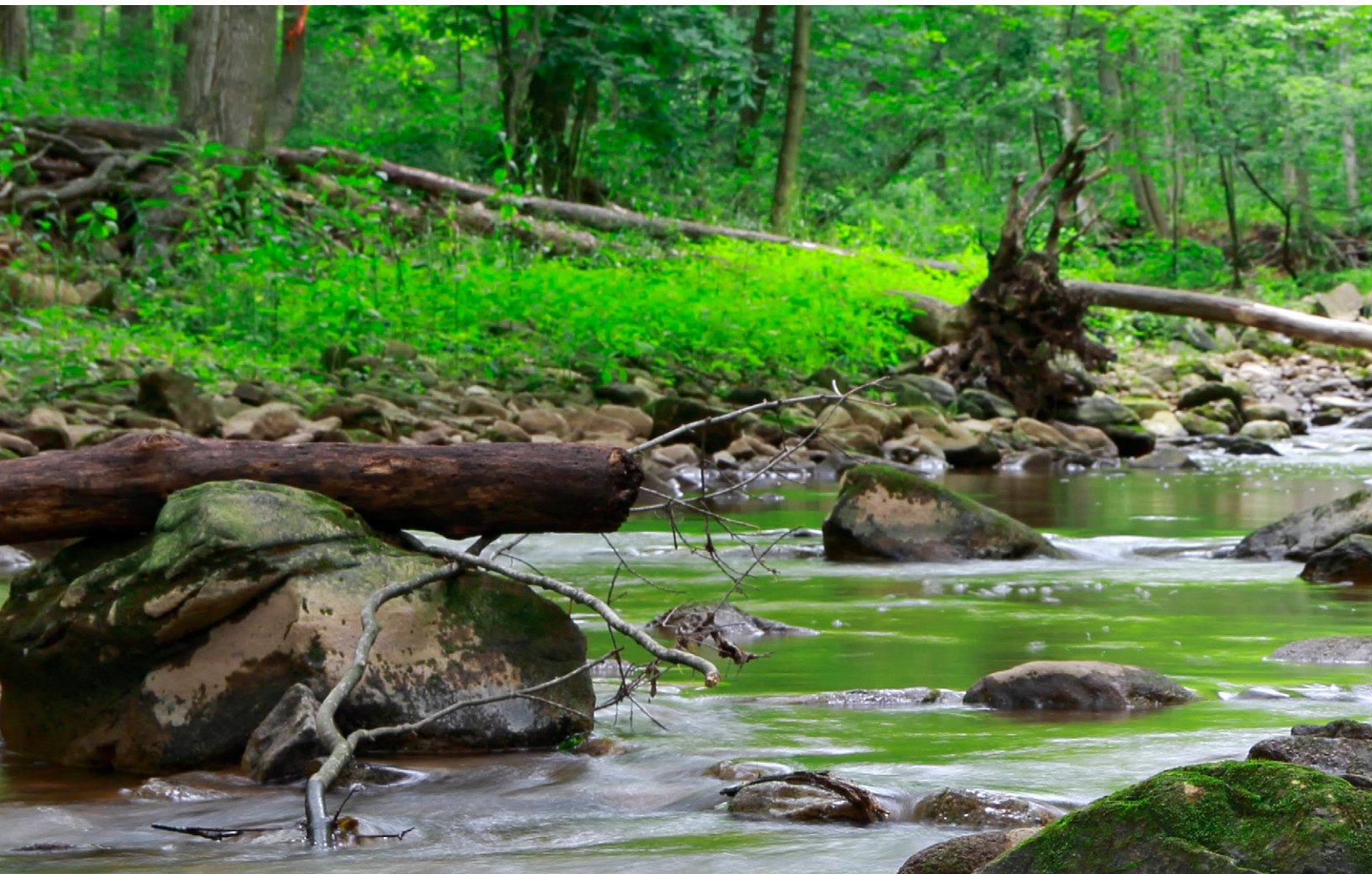
According to Michelle Kanter, director of Carolinian Canada, the primary objective of the CIB model is to establish an ethical and safe space, which serves as a foundational element for achieving various goals, outcomes, and impacts. This transformative approach has necessitated significant changes in the operations of Carolinian Canada, encompassing shifts in language, policies, direction, programming, team composition, and budget allocation. Establishing an ethical and safe space is crucial for fostering relationships and building trust, particularly when engaging in partnerships that span different Indigenous Nations. By integrating Indigenous and Western knowledge systems, the CIB model strives to create an ethical framework that promotes the restoration and preservation of healthy ecosystems and landscapes.^{xlvi}

Two-Eyed Seeing and its guiding principles were introduced by Mi'kmaq Elder Albert Marshall from Eskasoni in 2004 while aiming to integrate Indigenous knowledges into the sciences curriculum at Cape Breton University (Nova Scotia, Canada). It is viewed as integrating knowledge, perspectives, and actions that require a long-term commitment and strong relationships. Building these relationships is facilitated by creating an ethical and safe space^{xlvii}, which is essential to the success of the DZCIB pilot, the first implementation of the CIB. As the Two-Eyed Seeing evaluation framework is still in its early stages, it can only be improved by expanding ethical and safe space as a first step.

The CIB project leadership team acknowledges the importance of integrating Indigenous knowledges and perspectives into the project's outcomes. Inspired by the successful DZCIB pilot, the LCIB project aspires to embrace Indigenous input and co-creation throughout its entire lifecycle. In doing so, the LCIB endeavours to embed Indigenous worldviews within the structural framework of the CIB, surpassing mere consultation requirements. This approach recognizes and values the significance of Indigenous perspectives and knowledges, fostering a more inclusive and effective project implementation.

Recognizing the significance of building meaningful relationships with Indigenous communities, the CIB leadership team views co-creation as an opportunity to nurture these connections. Through collaborative and respectful collaboration, the CIB aims to develop a comprehensive understanding of the ecological challenges specific to the Carolinian Zone of Southern Ontario. The CIB strives to generate solutions rooted in this collective wisdom by incorporating diverse perspectives and knowledge systems. Ultimately, the leadership team envisions this approach will yield improved outcomes and contribute to a more sustainable future for the region.

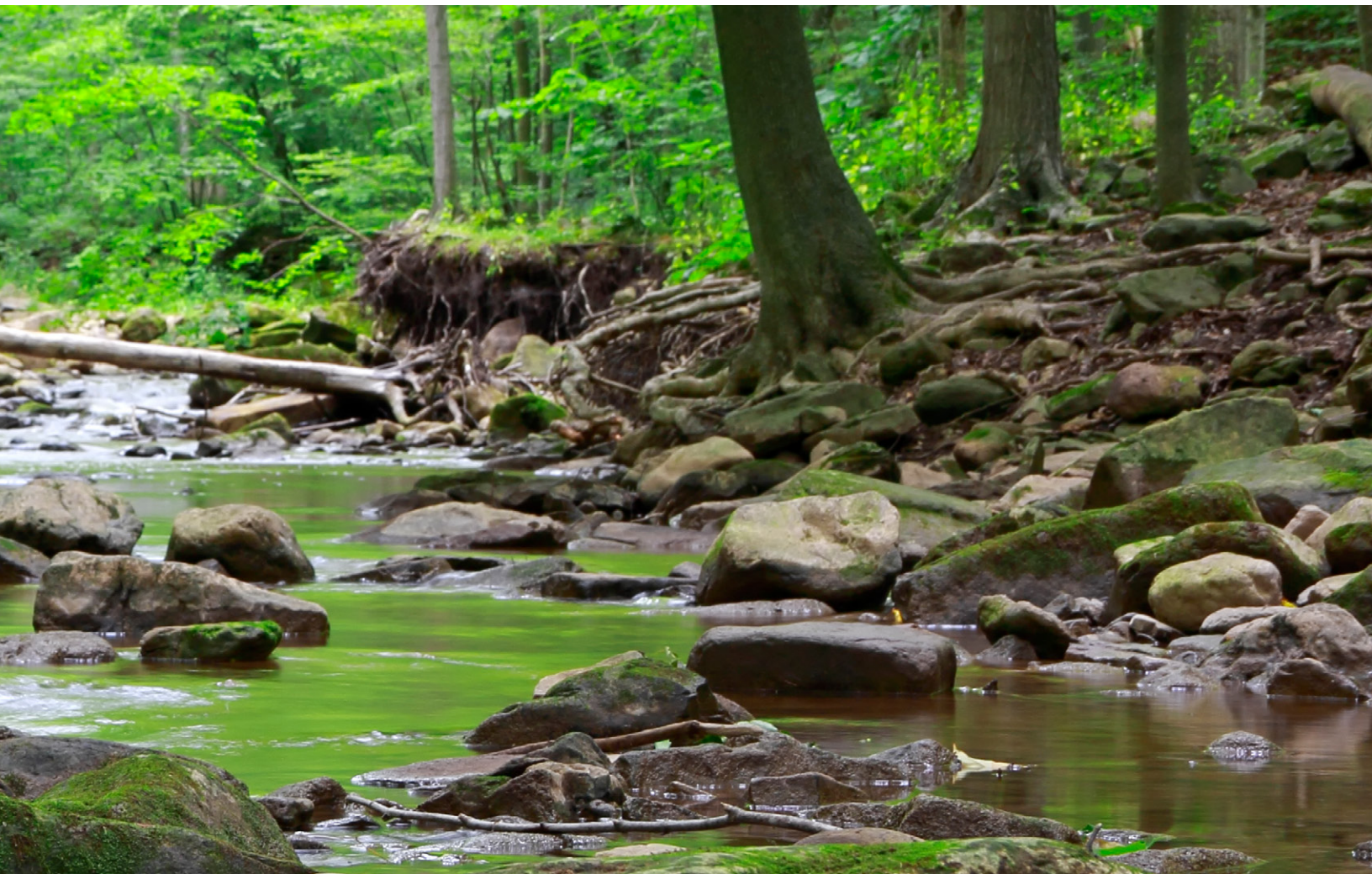
The CIB adopts a distinctive valuation approach that embraces Indigenous and Western worldviews. Referred to as Two-Eyed Seeing, this approach acknowledges the inherent value of Indigenous and Western perspectives and seeks to integrate them into the design of the financial instrument. By doing so, the CIB aims to promote an inclusive and holistic valuation approach that addresses the pressing ecological crises we face more comprehensively.



A vital aspect of this approach is relational accountability, which means that partners involved in the CIB are held accountable for achieving specific goals or assignments and building and maintaining positive relationships. This is where the co-creation sessions come in - bringing together a diverse group of partners and providing a space for collaborative exploration. The co-creation sessions, used to define the pay-performance mechanism metrics, help build trust and foster relationships among the partners. These relationships are essential for the success of the CIB, as they enable partners to work together in a spirit of collaboration and mutual support.

The DZCIB pilot was designed to address Indigenous priorities on the land, known as the “four moose,” while advancing Indigenous Protected Conservation Areas, co-management, and other Indigenous-led stewardship models and tools. In addition to achieving Two-Eyed Seeing, creating an ethical and safe space can enable us to achieve different goals, such as building relationships, reciprocity, accountability, and supporting Indigenous leadership. This pilot also honours connections to culture and community.

By integrating Indigenous worldviews into the design of the financial instrument, the CIB aims to build more equitable and inclusive partnerships that reflect a shared vision for the future. Moreover, by promoting accountability through co-creation, the CIB seeks to create a framework in which Indigenous partners shape the initiative's success, including on traditional territories outside reserve lands. This can help promote the shared process of truth and reconciliation, which is essential for achieving the transformative change the CIB seeks. A relational accounting paradigm is used to assess the consequences of ecosystem initiatives, considering their social, ecological, and economic aspects. Evaluators gather and evaluate impact information at many levels, using tried-and-true techniques built into the bond's structure.



2.3.2. GOING BEYOND QUANTITATIVE METRICS: FIVE IMPACT ASSESSMENT PILLARS

The DZCIB’s impact assessment attempts to go beyond quantitative criteria and use qualitative measures and Indigenous knowledge to analyze the effect holistically^{xlviii}. DZCIB’s assessment system comprises five pillars that serve as standards for landscape efforts and attempt to track overall impact. These include:

1. connecting healthy habitats;
2. connecting opportunities;
3. connecting knowledge;
4. connecting our hearts and minds; and,
5. connecting our bodies.

TABLE 2. DEFINITION OF THE FIVE PILLARS FOR ASSESSING THE IMPACT OF THE CONSERVATION IMPACT BOND

| | |
|---|--|
| <p>Connecting Healthy Habitat</p> | <p>This outcome category/evaluation pillar takes an ecological lens to advance healthy landscape goals. Associated goals of this pillar include increasing habitat quality, quantity, commitment, and leadership with native plants that support a range of nature-based solutions (e.g., climate-adapted landscapes, protected areas, wildlife corridors, biodiversity, greenhouse gas sequestration, canopy cover, groundwater infiltration and storage, ecosystem resilience, and native seed security, air quality, soil productivity, and eco-trails). This pillar also seeks to advance the application of Two-Eyed Seeing in habitat work through interweaving Western science, Indigenous ecological knowledge, and the teachings of nature.</p> |
| <p>Connecting Knowledge/ Circling and Learning</p> | <p>This outcome category/evaluation pillar takes a sociocultural lens to advance the goals of connecting knowledge/circling and learning and increase the number of people engaged in high-quality learning about the land. Circling is understood in this context as a non-hierarchical and continuous learning process. Associated goals of this pillar include increasing intergenerational learning, cross-cultural learning, eco-literacy, land-based learning, understanding of Indigenous history and wisdom, and revitalizing local Indigenous languages.</p> |
| <p>Connecting Opportunities</p> | <p>This outcome category/evaluation pillar takes a sociocultural lens to advance the goals for increased economic opportunities that improve landscape health. This pillar aims to align economic incentives with desirable ecological outcomes for humans and non-humans living and working on the land. Associated goals of this pillar include intercultural and cross-sectoral economic opportunities, implementing ecosystem service valuations and supporting Indigenous, native plant, agriculture, ecotourism, and other regenerative economic opportunities.</p> |

| | |
|--|---|
| Connecting Our Hearts and Minds | This outcome category/evaluation pillar takes an overlapping sociocultural and ecological lens to advance the goals of mentally, emotionally, and culturally connecting people with ecosystems. Associated goals include enhancing cultural health, community ceremonies and traditions, and relationships among people and between people and ecosystems. This pillar intends to support self-determination and create space for the people of this region to thrive based on their values and vision. |
| Connecting Our Bodies | This outcome category/evaluation pillar takes an overlapping sociocultural and ecological lens to advance the goals of physically connecting people with ecosystems. This category also seeks to report on the well-being of non-human relations on the land. For example, whether the eagles are returning to the land, the presence of monarch butterflies, the number of birds nesting, etc. Associated goals include shifting people’s lenses from anthropocentrism to ecocentrism, enhancing ecosystem relations, increasing food security, access to traditional medicines, and access to land. This pillar also intends to support self-determination and create space for the people of this region to arrive at what it means for them to thrive based on their values and vision. |

Source: Arjaliès et al. (2021), p.68-71

The five pillars were created for the first pilot of the CIB, the DZCIB. It is meant to be a dynamic model that reflects the project’s various inputs, activities, and outputs. It all links back to the theory of change — to provide a framework for understanding the process and pathway for change within a particular context — and is central to the CIB.

Furthermore, another critical aspect of the CIB is its pay-per-performance model. A pay-for-performance model is a type of contract or financial arrangement where payment is based on achieving pre-defined results or outcomes. In this model, the service provider is only paid when specific goals or targets are met. In “more traditional” finance words, the idea behind pay-for-performance is to align incentives between the service provider and the client, creating a shared interest in achieving successful outcomes.

A pay-for-performance model may fund environmental projects or conservation efforts in conservation finance. It is the case with the CIB, as it supports the project of habitat partners in the Carolinian region. For example, a conservation organization may enter into a pay-for-performance agreement with an outcome payer, where the outcome payer agrees to pay the investors a return on investment based on the success of achieving specific conservation outcomes, such as the restoration of a degraded ecosystem or the protection of endangered species. If the desired outcomes are completed, the outcome payer pays the agreed-upon amount, but they only provide payment if the outcomes are met.

In the case of the CIB, the metrics used to measure the impact of the projects are also used to determine the project’s success. These outcomes must be achieved for the outcome payer to reimburse the investors with a return on their investment. These metrics are selected through a collaborative process involving all partners in the LCIB, using a Two-Eyed Seeing approach to ensure that Indigenous and Western worldviews are incorporated into the decision-making process.

2.4 ACCOUNTING CHALLENGES FACED BY THE CAROLINIAN CANADA CONSERVATION IMPACT BOND

2.4.1. ADOPTING A TWO-EYED SEEING ACCOUNTABILITY APPROACH

The CIB adopts a Two-Eyed Seeing approach to transform the land valuation process from exploitative to regenerative fundamentally. In this model, investors provide funding for biodiversity conservation. At the same time, the cash flows originate from outcome payers such as corporations and governments who recognize and value the green infrastructure and ecosystem services that have been established. Consequently, the financial instrument's creation, called the "bond," contributes to restoring and revitalizing relationships among Indigenous peoples, Western peoples, and their respective ecosystems. Notably, neither the investors nor the outcome payers assume ownership or exploit the protected land tied to the bond. Instead, the return on investment arises from the collective assessment of the ecosystem services rendered without necessitating their commercialization or private appropriation. Through this different collaboration with Indigenous communities, integrating a Two-Eyed Seeing approach facilitates Western partners in acknowledging the Indigenous perspective that perceives the land as imbued with vitality and emphasizes the necessity of valuing such "life." The challenge is for all the rightsholders and stakeholders to agree on different success metrics for the CIB.

2.4.2. FINDING THE RIGHT ASSURANCE LEVEL FOR THE AUDIT

Since the DZCIB pilot serves as a prototype bond, it did not involve independent evaluators to audit and determine outcome payment and investor return. During the DZCIB pilot, the Leadership Team has been developing the evaluation framework and audit trail for the CIB model to facilitate future implementations. The goal is for future CIB projects to be independently evaluated using the developed evaluation framework and having investor return and outcome payer payments legally bound to outcome agreements.

As a prototype bond, the DZCIB pilot did not have independent assessors to analyze investor return. Instead, the CIB model's leadership team focuses on developing an evaluation framework and audit trail. The goal is for future CIB initiatives to be independently reviewed using the framework and to legally link investor returns and result in payer payments to outcome agreements.

Building relations with all rightsholders and stakeholders, including auditors, is essential and depends on the type of assurance we opt for.

TABLE 2. TYPES OF ASSURANCE

| Type of Assurance | Purpose | Level of Assurance | Scope | Reporting |
|-----------------------------|---|--------------------|---|--|
| Audit-level | This is the greatest degree of assurance that an auditor may offer. It entails a detailed investigation of an organization's financial statements and internal controls, with the auditor providing an opinion on whether they are substantially accurate and reliable. | High | Comprehensive | Audit report with an opinion on the financial statements |
| Review-level | This type of assurance is less extensive than audit assurance and involves the auditor executing analytical techniques and conducting queries to offer limited assurance on the financial statements. | Moderate | Limited to specific areas | Review report with a conclusion on the limited review |
| Attestation engagement | Attestation engagements entail the auditor validating a written statement or assertion made by management or another party. Based on the agreed-upon criteria, the auditor gives assurance that the statement is fairly presented. | Moderate to high | Can be comprehensive or limited to specific areas | Attestation report with a conclusion on the accuracy of the statement |
| Direct reporting engagement | In this type of engagement, the auditor chooses criteria to analyze the subject matter of the engagement (for example, a conservation impact bond) and delivers an opinion on whether the subject matter adheres to the chosen criteria. | Moderate to high | Comprehensive or limited to specific areas | Assurance report with a conclusion on the reliability of the information |

| Type of Assurance | Purpose | Level of Assurance | Scope | Reporting |
|----------------------------|--|--------------------|---|--|
| Compliance with a contract | In this assignment, the auditor determines whether an organization has complied with the terms of a contract or agreement with another party. The auditor judges whether the organization meets the contract's requirements. | Moderate to high | Limited to the specific terms of the contract | Compliance report with a conclusion on compliance with the terms of the contract |

Source: Fuller Landau team. (2022, January 28). Audit, review, or compilation: What's the difference? Retrieved from <https://fullerllp.com/blog/audit-review-or-compilation/>

The level of auditing could vary. Developing metrics does not necessarily require auditors-verifying metrics with rightsholders' and stakeholders' posts so accountants can conduct their audit. Another alternative is to let users decide the metrics. Lastly, auditors can participate in co-creating metrics to audit results.

Choosing the correct type of assurance can be challenging. Auditing and analyzing CIBs present various issues, including elements disclosed in Table 3.

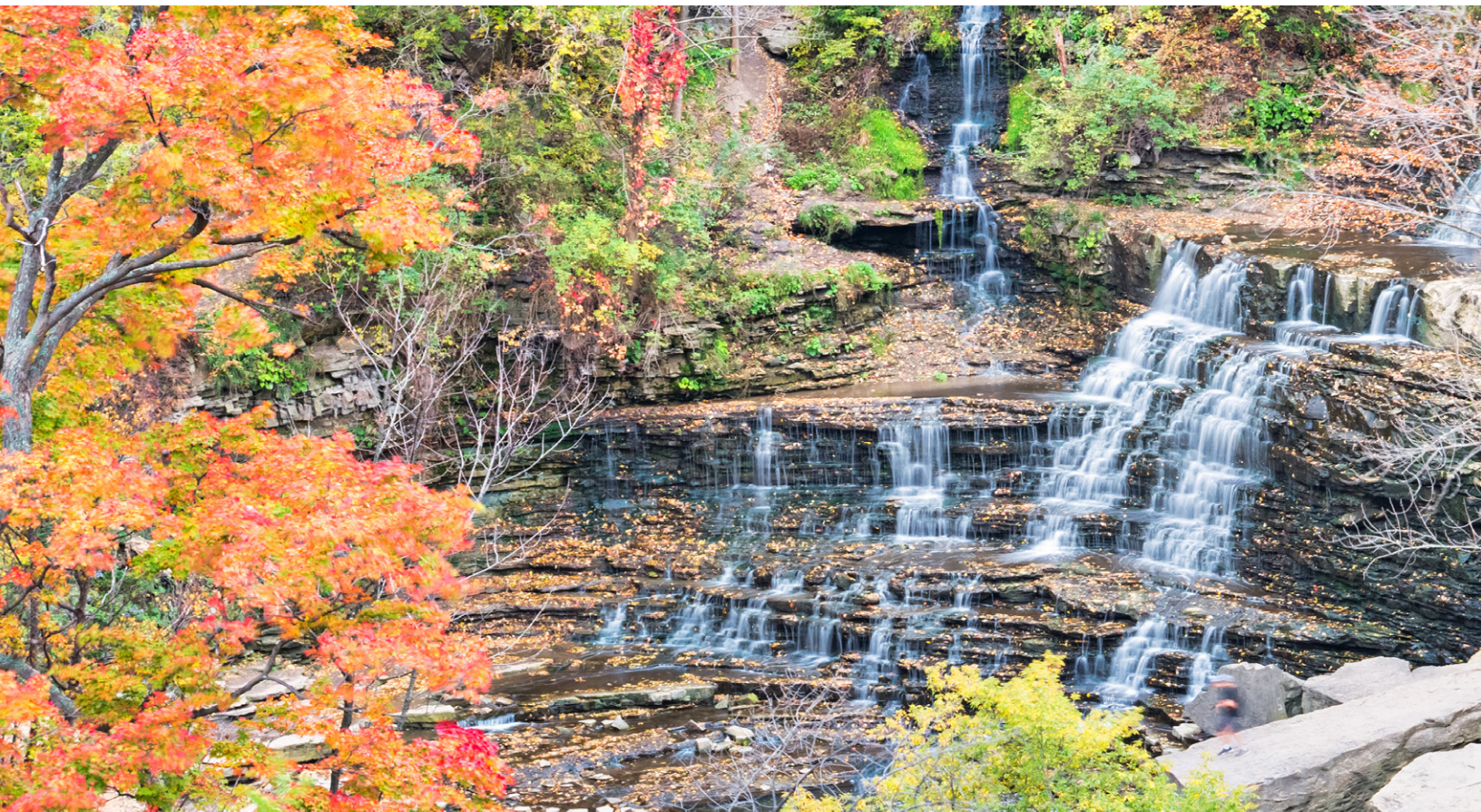
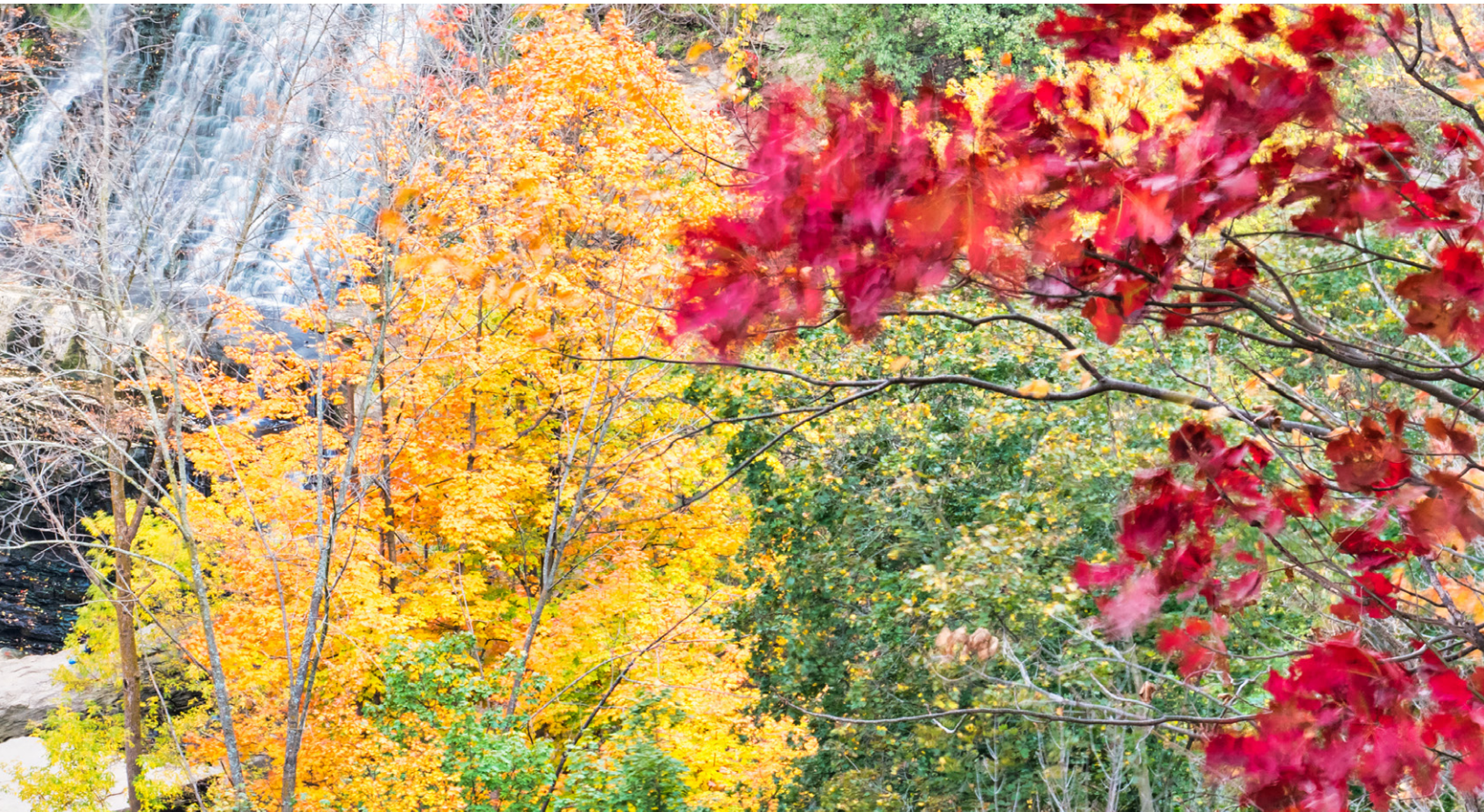


TABLE 3. ELEMENTS TO TAKE INTO CONSIDERATION FOR CHOOSING THE CORRECT TYPE OF ASSURANCE.

| | |
|--------------------------|---|
| Measuring impacts | Measuring the impact of conservation initiatives can take time since the full benefits of the project may take years or even decades to be seen. Furthermore, the effects might be difficult to quantify and may differ depending on the type of project and the environment in which it is implemented. |
| Data availability | Conservation impact bonds are a relatively new financial vehicle with little evidence of efficacy. Because of this short track record, auditors may find it difficult to assess the correctness and trustworthiness of the measures used to determine their impact. |
| Attribution | Attributing the impact of a conservation project on the bond can be challenging since other variables may be contributing to the observed changes in the environment. This can make determining the amount to which the bond is responsible for the observed effects complex. |
| Counterfactuals | To assess the impact of a conservation effort, compare the project's outcomes to what would have occurred without the initiative. However, determining the counterfactual situation can be challenging since there may have been numerous things influencing the environment in the lack of industry. |
| Incentives | Conflicts of interest between the parties engaged in a conservation impact bond may exist, affecting the incentives for effectively assessing and reporting the project's effects. The bond issuer, for example, may have a motive to overestimate the project's benefit to attract future investment. In contrast, the assessor may be incentivized to understate the impact to preserve their independence and credibility. |





The fact that there is a limited track record in this space makes it challenging to bring standardization to the processes. Apart from metric issues, some core accounting hurdles make it difficult to evaluate CIBs. The determination of the fair value of the bond at the time of issuance and later measurement dates is one of the accounting problems with conservation impact bonds. This is because CIBs are relatively new financial products with no established market values or similar transactions to serve as a reference for valuation.

Another difficulty is accounting for the obligation's initial recognition and subsequent measurement. Because CIBs are frequently structured as pay-for-success contracts, the responsibility may need to be recognized and quantified to attain specific conservation targets. This can be complicated and may require the participation of numerous rightsholders and stakeholders, such as bond issuers, investors, and independent assessors.

Finally, accounting for the impact of investments the bond issuer owns might take much work. The bond issuer may invest the bond revenues in various initiatives to attain the intended conservation results. Accounting for these investments may need an examination of criteria such as the nature of the assets, the extent of control and influence the bond issuer has over them, and the degree to which they correspond with the bond's stated conservation aims.

The CC-CIB is an organized initiative involving multiple rightsholders' and stakeholders' collaboration to develop a solution to a complex problem. The CC-CIB aims to create a shared vision and generate synergy in addressing the current ecological challenges using a systems approach and a unique framework.^{xxxviii} The project primarily centers around systems thinking and focuses on establishing strong rightsholder and stakeholder relationships.

The present systems transformation techniques are founded on Western science's analytical epistemologies, which differ from Indigenous knowledge's experiential epistemologies. Recognizing cultural and spiritual perspectives is critical in awareness-based system transformation and decolonizing systems thinking.

3. Conclusion: The future of accounting and CPAs

The CC-CIBs seek to increase carbon sequestration by encouraging conservation, management, restoration, and expansion of grasslands, wetlands, forests, and other natural infrastructure. The emphasis is on the consequences of habitat conservation, preservation, and restoration that increase carbon sequestration and landscape resilience. The project's next phase will strongly emphasize outputs that enable adaptable landscapes. As the CC-CIB model matures, it will be critical to apply third-party standards and independent reviews to ensure project credibility.

The biodiversity and climate crises are becoming a central driving factor in future policy and business decisions – particularly in global concerns that necessitate sustainable capacity building and regrowth. Given the magnitude of material risks and the potential for natural regeneration to provide a range of benefits from climate mitigation to social impact and the achievement of the UN SDGs, this call to action is not a trade-off.

Investors can start to play their vital part in creating and establishing a bioeconomy by seeking greater transparency of the risks and dependencies within their portfolios to enhance their understanding and gain actionable insights – even if the data is not yet comprehensive. This can set a firm footing for scaling up investment ambitions, considering ways sustainability strategy could encompass proactive, nature-positive solutions addressing existing investment gaps and potentially capitalizing on untapped growth opportunities. In taking these steps, the global investment community can work together to create a more sustainable economy for preserving people and planetary health.

In addition to investor actions, CPAs also play a crucial role in facilitating the transition toward a sustainable and regenerative future. By enhancing transparency and providing reliable information, accounting enables investors to assess the risks and dependencies within their portfolios more effectively. CPAs can contribute to a deeper understanding of the environmental impacts associated with investment activities through robust reporting and disclosure practices that include biodiversity and the Indigenous perspective. This includes identifying key sustainability indicators, such as carbon emissions, water usage, and biodiversity impacts, but also social elements, such as land access for ceremonies and cultural practices for Indigenous Nations. While comprehensive data may evolve, CPAs can provide a foundation for scaling up investment ambitions and integrating sustainability strategies incorporating nature-positive solutions. By capturing, reporting, and auditing these factors, accounting frameworks can help bridge existing investment gaps and identify untapped growth opportunities that align with environmental preservation and contribute to overall human and planetary well-being. Global investment and CPAs can build a more just and sustainable economy by collaborating and aligning accounting practices with sustainability goals.

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