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Can Canada Step into the Breach? Addressing Climate-related Financial Risk and Growing Green Finance

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Key Points

- There was no consensus on climate-related financial risk at the Group of Twenty (G20) meeting of central bankers and finance ministers in March 2017, and the final communiqué did not mention climate change or the Paris Agreement. US President Donald Trump has since announced his intention to withdraw from the Paris Agreement; therefore, the phase I report from the Task Force on Climate-related Financial Risk Disclosures (TCFD) may not be welcomed at the G20 summit in July.
- As a result, G20 finance ministers must assure governance of this agenda through interconnected national high-level expert groups.
- Canada's financial institutions including asset owners and asset managers have the capacity to move swiftly to contribute to a platform for international collaboration on climate-related financial risk and green finance opportunities.

Introduction

At their meeting on September 5, 2015, in Antalya, Turkey, G20 finance ministers and central bankers requested that the Financial Stability Board (FSB) examine the risks posed by climate change to the global financial system. In response to this request, a private-sector-led task force was formed. The TCFD published its phase I report on December 31, 2016, in anticipation of the G20 leaders' meeting in July 2017 in Hamburg, Germany.

The G20 finance ministers and central bankers met on March 18, 2017, in Baden-Baden, Germany, but — unlike their meeting in 2016 in Chengdu, China — there was no mention in the final communiqué of climate change and the risks it poses to the planet and to the stability of the global financial system (G20 Finance Ministers and Central Bank Governors 2017). Foreshadowing US President Donald Trump's withdrawal from the Paris Agreement, within the consensus-based G20 forum in March 2017, US finance representatives were not mandated to support communiqué language acknowledging climate change and the related risks to capital markets and the global financial system. With the decision of the US administration to leave the Paris Agreement, it is, therefore, likely that all climate-related matters will be excluded from the final communiqué at the Hamburg G20 Summit, signifying that the phase I report from the TCFD will not be welcomed by G20 leaders.

About the Author

Céline Bak is a CIGI senior fellow with the Global Economy Program. At CIGI, she serves as the co-chair of the Think Tank 20 (T20) task force on climate policy and finance. This task force will feed into the G20 Secretariat under the German presidency on carbon pricing, sustainable infrastructure and sustainable finance. In her capacity as an innovation practitioner, Céline sits as a director of Emissions Reduction Alberta, Green Centre Canada and chairs the Core Evaluation Team for Genome Canada's Genomic Applications Partnership Program. Through her role as president of Analytica Advisors, Céline provides strategic vision for clean technology industry leaders. As an expert on innovation and the low-carbon economy, Céline has appeared on five occasions as a witness before Parliament, and is frequently sought out by major Canadian media outlets to discuss sustainable finance, climate change and the low-carbon economy in Canada. Within Global Affairs Canada, she was the chair of the Private Sector Advisory Group and served as the senior industry advisor — sustainable technologies. Céline holds an M.B.A. from the University of Bath and a bachelor of commerce degree from the University of Guelph.

Just as importantly, the lack of consensus among G20 leaders on climate change and its impacts may put future climate-related mandates for the FSB at risk. For example, with no consensus on climate-related financial risk among G20 finance ministers and central bankers, the FSB may not be mandated to establish harmonized mechanisms for, *inter alia*, definitions of materiality for continuous disclosure to capital markets of climate-related financial risk, the impact of shadow carbon pricing[1] to assess new infrastructure on mobilizing finance for infrastructure projects, norms for green bonds and the potential for green finance to offset climate-related financial risk in the financial system and the implications for prudential policy.

The now resolved fracture in the White House between detractors and supporters of the United States' remaining in the Paris Agreement will disrupt the G20 consensus and engagement of the FSB on climate-related matters. The FSB's active convening of the private sector on climate-related financial disclosure would also run counter to the US administration's proposed deregulation of financial markets.

Finance leaders from both the public and private sectors in G20 countries must be prepared for such an outcome. They must move swiftly to implement mechanisms for national and global governance of climate-related financial risk and green finance. There is a real risk that uncoordinated efforts in the absence of a G20 consensus on climate change will result in asymmetries in the timing and nature of the norms, standards and regulations governing green finance and climate-related financial risk disclosure and that this delay may contribute to tipping points and financial instability.

1 Shadow pricing is defined as a way to evaluate potential investments: "This approach attaches a hypothetical or assumed cost for carbon emissions — for example US$30 per metric tonne of CO_2-equivalent — to better understand the potential impact of external carbon pricing on the profitability of a project. Companies also create a range of shadow prices to test sensitivities or build them into financial models with various assumptions, probabilities, and discount rates" (United Nations Global Compact, United Nations Environment Programme [UNEP] and the secretariat of the United Nations Framework Convention on Climate Change 2015).

Proposal for Green Finance and Climate-related Financial Risk post a G20 Consensus on Climate Change

Barring a mandate to the FSB from G20 leaders to welcome the phase I report of the TCFD, a coalition of willing G20 finance ministers should establish a platform for collaborative exchange to harmonize approaches to scaling up green finance and for disclosure of climate-related financial risks, including transition, physical and litigation risks, to capital markets and to green finance. To ensure coordination across G20 economies, this platform should be chaired by finance ministries / central banks and involve all relevant stakeholders, including regulators, academia, finance, industry and relevant international institutions.

As an example, the proposed platform would enable joint work on the implementation of climate-related financial risk disclosure norms and standards for asset owners, asset managers and disclosing firms. The platform should also support common definitions for green finance to support risk-return analysis compared to conventional finance. Green investments will be needed for sustainable infrastructure and other projects that address the transition and physical risks of climate change, but markets will not emerge if risk-adjusted returns (including the risks presented by climate change) cannot be assessed on a standardized basis. In addition, the platform could host model legislation for financial disclosure and the standardization of green finance practices, for the private sector, public agencies and state-owned entities consistent with the Paris Agreement. The platform would begin with a coalition of willing G20 members and, in time, could be expanded.

Canada should leverage the capacity of private sector financial leaders — including in asset management and ownership — as well as other stakeholders to constitute a Canadian high-level expert group on green/sustainable finance to support the minister of finance and the officials engaged with the platform. Canada's high-level expert group would be consulted by the minister of finance in regards to climate-related financial risk disclosure and the scale-up of green finance. Finance officials providing governance for the platform on behalf of the minister of finance would be informed by Canada's Paris Agreement commitments as negotiated by Environment and Climate Change Canada. Both the European Union's High-level Expert Group on Sustainable Finance and China's Green Finance Study Committee may serve as examples for a Canadian high-level expert group (see Box 1 and Box 2).

There is a scientific consensus on the global carbon budget. To keep the global temperature increase to less than 2°C with a "likely" chance, the emission of carbon into the atmosphere needs to be limited to roughly 800 gigatons of carbon dioxide ($GtCO_2$). However, the pledged nationally determined contributions (NDCs) under the Paris Agreement would consume 75 percent of the total carbon budget by 2030, whereas the 800 gigatons budget is the total for all CO_2 emissions (Intergovernmental Panel on Climate Change [IPCC] 2014) (see Figure 1). Pledged NDCs plus planned coal power plants in the developing world would take us over the 800 gigatons limit, and yet financial institutions continue to insure the construction of coal power plants (Edenhofer, Flachsland and Kornek 2016), although Axa Insurance, a global insurer, announced recently that it will no longer insure the construction of coal plants.

At the same time, scaling up infrastructure that is low carbon and climate resilient will be needed to meet climate and economic goals. The global investment in infrastructure required for energy and transport over the next 15 years is estimated to be around US$50 trillion, with an additional US$30 to US$40 trillion for water and digital infrastructure (Bhattacharya et al. 2016).

With shared aspirations that made the Paris Agreement possible, and the enhanced commitments to climate action by nations expressed in their NDCs, governments must now turn their attention to implementation, including the alignment of financial flows and global capital markets with a strategy to keep global temperature increase under 2°C. This is the work of finance ministers and their ministries. Their engagement and that of private sector leaders is urgently needed so that progress continues to be made on climate-related financial risk and green finance, despite lack of consensus among G20 leaders.

Box 1: Green Finance Expert Groups with Financial Institution Membership

EU High-Level Expert Group on Sustainable Finance

The EU High-Level Expert Group on Sustainable Finance is a consultative body created by the European Commission in October 2016 to assist in the implementation of existing EU legislation, programs and policies. The group is tasked with producing a report that sets out the scale and dimensions of the challenges and opportunities that sustainable finance presents, and recommending a comprehensive program of reforms to the EU financial policy framework, including clear prioritization and sequencing.

The group's members consist of experts representing European countries such as France, Sweden and the United Kingdom; professional associations and financial institutions such as the International Capital Markets Association and the Nordic Investment Bank; and public entities such as the European Environment Agency and the UNEP. It benefits from the support of the European Climate Fund.

The first meeting of the group occurred on January 24-25, 2017; the second and most recent meeting occurred on March 6-7, 2017. The EU High-Level Expert Group on Sustainable Finance will issue its report on priorities on July 8, 2017.

China's Green Finance Committee

Established on April 22, 2015, the Green Finance Committee of the China Society for Finance and Banking is an internal entity without legal person status. It operates under the China Society for Finance and Banking and its major members include large state-controlled banks, policy-related banks, sovereign wealth funds and other financial institutions in China. It benefits from the support of a special committee for academic research and work coordination on green finance research. This support committee provides research on new green investment/financing products and services, establishes green investment concepts among institutional investors, strengthens their capacity and enables the implementation of green finance policies.

Box 2: Another Relevant Green Finance Groups

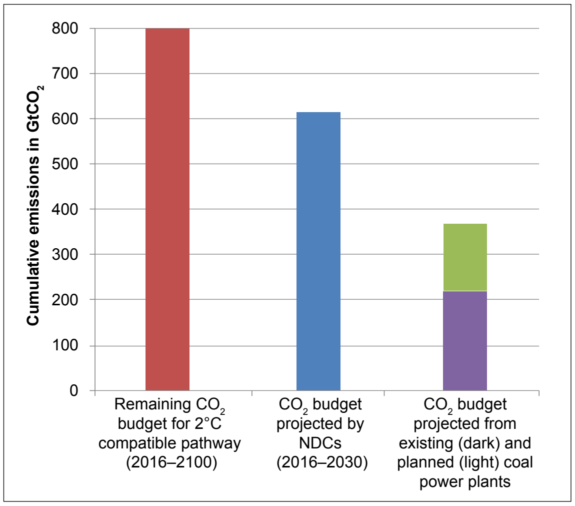
G20 Green Finance Study Group

Under China's presidency of the G20 in 2016, the proposal to launch the Green Finance Study Group was made. The study group is co-chaired by China and the United Kingdom. Its members include central banks.

According to the Green Finance Study Group:

> "Green finance" can be understood as financing of investments that provide environmental benefits in the broader context of environmentally sustainable development. These environmental benefits include, for example, reductions in air, water and land pollution, reductions in greenhouse gas (GHG) emissions, improved energy efficiency while utilizing existing natural resources, as well as mitigation of and adaptation to climate change and their co-benefits. Green finance involves efforts to internalize environmental externalities and adjust risk perceptions in order to boost environmentally friendly investments and reduce environmentally harmful ones. Green finance covers a wide range of financial institutions and asset classes, and includes both public and private finance. Green finance involves the effective management of environmental risks across the financial system. (G20 Green Finance Study Group 2016)

Figure 1: Global CO_2 Emissions Remaining to Keep below 2°C Rise in Temperatures versus Projected Carbon Emissions by NDCs and from Existing and Planned Coal Power Plants



Source: Edenhofer, Flachsland and Kornek (2016).
Note: The budget for 2°C refers to cumulative CO_2 emissions consistent with limiting warming to less than 2°C with a "likely" chance (66 percent probability), see IPCC (2014) for the qualification of uncertainties.

The FSB and Climate-related Financial Risk

The G20 countries are responsible for 80 percent of global GDP and roughly 80 percent of global energy use and CO_2 emissions, and are thus heavyweight players in both the economy and climate.[2]

The FSB has a close relationship with the G20, because it was transformed from the Financial Stability Forum at the initiative of the G20. Additionally, the G20 regularly endorses the FSB's policy agenda and establishes mandates on which the FSB reports back to the G20. The plenary, consisting of representatives of all FSB members, is the sole decision-making body of the organization. The FSB's members are comprised of institutions from member jurisdictions,[3] international financial institutions, and international standard-setting bodies.[4]

The FSB monitors and makes *non-binding* recommendations about the global financial system to promote international financial stability and strength. Its duties include: assessing vulnerabilities affecting the global financial system; promoting coordination and information exchange among authorities responsible for financial stability; and supporting contingency planning for cross-border crisis management. Since 2015, the FSB has received climate-related mandates from the G20.

At their meeting on September 5, 2015, G20 finance ministers and central bankers asked the FSB to consider climate risks to the financial system. The G20's request emerged from the scientific foundations established by the IPCC for the consensus that human-induced climate change poses a real threat to economic growth (IPCC 2014).

Later that month, on September 29, 2015, Mark Carney, the governor of the Bank of England, gave a landmark speech at Lloyds of London at which he said, "We don't need an army of actuaries to know that the catastrophic impacts of climate change will be felt, beyond the traditional horizons of most actors. It will impose costs on the future generations that the current one has little direct incentive to fix. That means beyond the business cycle; the political cycle; and the horizon of technocratic authorities, like central banks, who are bound by their mandates" (Carney 2015). He went on to say that the insurance cost of climate-related events had increased five-fold, from US$10 billion annually to US$50 billion annually, over 30 years on an inflation-adjusted basis. In the spring of 2017, many residents in eastern Canada are experiencing the impacts of climate change first-hand, in the form of flooding caused by intense rain.

2 The G20 countries are: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the European Union.

3 The FSB's Canadian members are the Bank of Canada, the Office of the Superintendent of Financial Institutions and the Department of Finance.

4 The non-national members of the FSB are international financial institutions – the Bank for International Settlements, International Monetary Fund, the Organisation for Economic Co-operation and Development (OECD) and the World Bank – and international standard-setting and other bodies – the Basel Committee on Banking Supervision, the Committee on the Global Financial System, the Committee on Payments and Market Infrastructures, the International Association of Insurance Supervisors, the International Accounting Standards Board and the International Organization of Securities Commissions.

At the subsequent meeting of G20 finance ministers and central bankers in July 2016, the final communiqué noted, under "Issues for Further Action," "We look forward to considering the phase II report and recommendations of the FSB's Taskforce on Climate Financial Disclosures in early 2017, which will present its recommendations for better climate related disclosures" (G20 Finance Ministers and Central Bank Governors 2016).

When it was constituted, the TCFD was comprised of 32 members chosen by the FSB, covering a broad range of economic sectors and financial markets. Its Canadian members include BlackRock and the Canada Pension Plan Investment Board (CPPIB), as well as several international organizations with Canadian offices, including Mercer, Ernst & Young and KPMG.

The TCFD was tasked with developing guidelines for climate-related financial risk disclosure for use by companies to provide continuous financial disclosure to capital markets, including asset owners and managers, lenders, insurers and other stakeholders. On March 31, 2016, the TCFD presented its phase I report to the FSB.

The report was comprised of five main components:

→ a review of existing climate-related disclosure initiatives;

→ the scope and high-level objectives of the task force;

→ fundamental principles for effective disclosure;

→ plans for stakeholder outreach and public consultation; and

→ plans for moving forward in phase II.

To improve transparency in financial markets and advance more informed investing, lending and insurance underwriting decisions, the TCFD made recommendations on enhanced and consistent disclosure. At its core, the report established three levels of climate-related financial disclosure: how investments contribute to climate change, including the emissions from investment portfolios and the positive impact of investments that reduce carbon emissions; how climate change will affect the resilience of investments, including transition risks and physical risks; and what climate scenario and emissions assumptions are used to assess the climate resilience and impact of investments.

Lack of disclosure of climate risk information creates challenges for investors when determining the physical, regulatory and legal risks associated with climate change. Reporting is currently voluntary and differs across industries and regions. Capital market regulators may decide that under their mandate to ensure investor protection, mandatory disclosure of climate-related financial risk would protect against stranded assets (see Box 3). Financial system regulators may consider that enhanced accounting norms and standards on climate-related disclosure would guard against dangers of tipping points and support financial stability. Legal bodies may consider that climate-related risk may be considered as part of fiduciary duties. Today, only five percent of the world's 500 largest institutional investors have implemented policies that monitor stranded-asset risk with their investment managers (Bouvet, Kirjanas and Sheppard 2016).

The information asymmetries that exist for climate-related financial risk also interfere with projects based on innovative solutions with the potential to reduce GHG emissions. These may occur in many areas, including, for example, transportation, energy efficiency, renewable energy storage and methane abatement. In order to accelerate the climate and economic spillover benefits of public investment in innovation, green finance policies must also address the broadening and deepening of disclosures that may open markets for investment in low-carbon innovation. This could be achieved through disclosure of the positive impact that investments in innovative carbon-reducing projects have on climate-related financial risk (Verdolini et al. 2017).

The harmonization of climate-related financial risk disclosure throughout the financial system — as part of building markets for green finance including sustainable infrastructure and scaled-up deployment of low-carbon innovation — will both encourage a shift of global capital and anchor climate resilience within the world's financial system. A platform to share norms and standards, including model legislation on climate-related financial risk, green finance and finance for sustainable infrastructure, would enable participants to build on and leverage progress across the globe. This would contribute to bringing down barriers to addressing climate-related financial risk in national and global financial systems (see Table 1).

Box 3: Canadian Securities Regulators Announce Climate Change Disclosure Review Project

March 21, 2017

The Canadian Securities Administrators (CSA) today announced a project to review the disclosure of risks and financial impacts associated with climate change. The project will gather information on the current state of climate change disclosure in Canada and internationally, and will include consultation with investors and reporting issuers.

The disclosure practices of public companies in relation to climate-related risks and financial impacts have attracted significant international attention in recent years. Several voluntary disclosure frameworks have been proposed, culminating in their publication. In December 2016, a set of recommendations by the Financial Stability Board's Task Force on Climate-related Financial Disclosures were published… CSA Staff intend to review disclosure prepared by large TSX-listed reporting issuers on the material risks and financial impacts associated with climate change as well as related governance processes; gather feedback from reporting issuers about current disclosure practices through an anonymous online survey; and conduct focus groups with reporting issuers and investors. CSA Staff will also examine risk disclosure requirements related to climate change in other jurisdictions, as well as recently proposed voluntary disclosure frameworks.

The CSA expects to conduct its information gathering in spring and summer 2017 and publish a progress report outlining its findings upon completing its review.

Source: www.securities-administrators.ca/aboutcsa.aspx?id=1567.

Table 1: Barriers to Green Finance and Policy Measures

Barriers	Measures
Microeconomic barriers	
Missing clear green definition	Development and establishment of green principles and indicators
Lack of transparency and information asymmetry	Disclosure guidelines for environmental and financial risks and knowledge sharing in this field
Inadequate analytical capacity	Training, risk modelling, ratings, indices
Maturity mismatches	Development of markets for green bonds or securitized products
Macroeconomic barriers	
Macroeconomic financial barriers	Developing local capital markets
Political barriers	
Lack of strategic policy signals	Countries should deliver strategic policy signals and frameworks
Political country risks	Address at country level
Regulatory risks	Development of adequate regulatory frameworks for green finance

Source: Berensmann et al. (2017).

There are many questions that must still be considered if green finance is to become a foundation for the global economy. For example, at a macroeconomic level, it will be necessary to understand the potential for green finance to reduce risk in the financial system. This would require consideration of financial market regulation, including capital adequacy, reserve requirements, investment limits, assets and liabilities valuation and foreign investment limits. These factors may potentially deter longer-term investment and cross-border investments related to sustainable infrastructure and new innovations. The impact of these regulations could, potentially, be changed to allow for preferential capital ratios for green debt and equity investments (Berensmann et al. 2017). Risk-return characteristics of green finance compared to conventional finance must be considered. Similarly, it will be important to understand the role of public sector actors to scale up private sector finance for sustainable infrastructure that will be needed to ensure the attainment of NDCs to the Paris Agreement (Bak et al. 2017).

However, under the current US administration, such questions will not be formulated as mandates for the FSB by consensus of G20 finance ministers and central bankers. Therefore, other mechanisms must be established to ensure that regulators of global capital markets can have reliable sources of evidence on climate-related financial risk from the G20 members who do stand by their Paris Agreement commitments, including the commitment to the goal of limiting warming to 1.5°C.

Canadian Foundations for Global Governance of Climate-related Financial Risk

As stated above, to have a "likely" chance of keeping global temperature increase under 2°C, carbon emissions need to be limited to approximately 800 $GtCO_2$ (IPCC 2014). However, by 2030, 75 percent of the total carbon budget will be consumed by pledged NDCs under the Paris Agreement. Uncertainty over emissions from the US, may increase this figure. Additionally, delays will increase the cost of future remedial measures and increase chances for catastrophic risks, emphasizing the urgency of the problem. The necessity for immediate action on climate-related disclosure in Canada's financial system is illustrated by Canada's GHG and economic profile.

Although characterized by Hugh O'Reilly, president and CEO of OPTrust, a Canadian pension fund, as being still at the "beginning conversation" on climate-related financial risk disclosure,[5] Canada's financial sector sits on foundations that can be leveraged to accelerate the deployment of a platform for international collaboration on climate-related financial risk and green finance. The appendix to this policy brief provides an overview of Canadian organizations and Canadian asset ownership and asset management financial institutions that are engaged on matters to do with environmental, social and governance (ESG) and climate-related risk. These entities and their foundational capabilities should be leveraged by Canada's minister of finance and public officials to shore up the global governance currently being provided by the G20 on climate-related financial risk and to accelerate the translation of Canada's Paris Agreement commitments into the financial system.

As a basis to enable joint work, examples of Canadian organizations and private sector entities currently working at the intersection of the financial sector and the environment are presented in the appendix.

5 Public remarks at Globe Capital Conference, Toronto, ON, April 4.

Canada Can Step into the Breach in the Global Governance of Climate-related Financial Risk

This policy brief cannot provide an exhaustive account of the strengths Canada's financial sector can bring to green finance and the global governance of climate-related financial risk through the breadth and depth of private and public sector engagement. In terms of environmental performance, Canada has a good deal of work to do. It is poorly ranked in terms of climate change and ESG on a number of key environmental performance benchmarks:

- GHG emissions: Canada is fifth from last in the OECD, fourth worst globally in GHG intensity per GDP after Russia, China and Indonesia (World Resources Institute 2014).
- Other air emissions: near the bottom of OECD rankings of particulates, volatile organic compounds, sulfur oxides and nitrous oxides — on both a per capita and per GDP basis (OECD 2016).
- Water productivity: eleventh in the world in the OECD (ibid.).
- Waste treatment: seventh from the bottom in OECD for landfilling (ibid.).
- Energy use and productivity: second from the bottom on energy consumption per capita (ibid.).

These rankings do not fit with Canada's image of itself. Canada has a good deal of catching up to do.

But there is little doubt about the ability of Canadian institutions, including asset owners and asset managers, to step into the breach in the national and global governance of green finance and climate-related financial risk as part of a coalition of willing states working on a common platform. Doing so would provide a vehicle for progress in the absence of a G20 consensus on climate change, and would have the benefit of accelerating domestic progress on green finance.

Timothy Lane (2017), deputy governor of the Bank of Canada, summed up the opportunity during his recent address: "With the right pricing on carbon, more green investments become profitable. However, enhanced transparency and analytical tools are also needed to enable investors to exploit those opportunities, particularly when the benefits may accrue over a long period of time."

Despite the shared aspirations that made the Paris Agreement possible, and despite the enhanced commitments to climate action by nations (including Canada) expressed in their NDCs, a unified strategy to keep global temperature increase under 2°C is still well out of reach. Now is the time to coalesce around the capacity of private sector financial actors, including asset owners and asset managers, nationally and globally to make finance congruent with the Paris Agreement commitments. As an African proverb says, "if you want to go fast, you go alone, but if you want to go far, you go together." It is time for G20 finance ministers to assure governance of this agenda through interconnected national high-level expert groups. Canada's financial asset owners and asset managers have demonstrated their commitment to make progress on climate-related financial risk and green finance. A platform for international collaboration on climate-related financial risk and green finance opportunities may be a vehicle to magnify their positive impact.

Author's Note

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Appendix: Canadian Stakeholders with an Interest in ESG and Climate-related Risk

Canadian Organizations and Divisions of International Organizations

Canadian Coalition for Good Governance (CCGG)

Founded in 2003, the CCCG was formed to promote good governance practices in the assets and companies owned by its members and the improvement of the regulatory environment to best align board and management interests with those of their shareholders, and to promote the effectiveness of Canadian capital markets. Its members consist of pension funds, mutual fund unit holders, and other institutional and individual investors. These include the CPPIB, Desjardins, Ontario Public Service Employees Union (OPSEU) Pension Trust and TD Asset Management Inc. Together they manage approximately $3 trillion[6] in assets.[7]

Focusing Capital on the Long Term (FCLT)/ FCLT Global

FCLT was established in 2013 as an initiative of the CPPIB and McKinsey & Company. Together with BlackRock, the Dow Chemical Company and Tata Sons, FCLT Global was founded in 2016. FCLT Global is a non-profit organization that supports long-term behaviours in business and investment decision making by developing practical tools and approaches. This includes research, convening business leaders, and developing educational resources and actionable recommendations. FCLT Global's international membership base is comprised of leading asset managers, asset owners, corporations and professional services firms. They include Ernst & Young, the Ontario Teachers' Pension Plan (OTPP), APG, BP and Schroders.

Principles of Responsible Investing (PRI)

Founded in 2006, PRI is an investor initiative in partnership with UNEP Financial Initiative (FI) and the UN Global Compact. PRI's goal is to understand the implications of sustainability for investors and support signatories to integrate ESG issues into their investment decision-making and ownership practices. Its signatories contribute to the development of a more sustainable international financial system in implementing the six principles set forth by PRI, which are voluntary and aspirational. Signatories of the PRI are global, and are comprised of asset owners, investment managers and service providers. In total, there are 1,705 signatories, including the Ontario Pension Board, Addenda Capital, Desjardins, Rockefeller Asset Management and Grosvenor Europe.

SHARE

SHARE was founded in 2000 to provide responsible investment services, research and education for institutional investors. This includes shareholder engagement, proxy voting, policy development and PRI reporting. These services aim to help SHARE's clients integrate ESG issues within the investment management process. SHARE's clients consist of pension funds, mutual funds, foundations, faith-based organizations, universities and asset managers across Canada, including OceanRock Investments Inc., Atkinson Foundation, Genus Capital and The United Church of Canada. All together, they manage over $14 billion in assets.

UNEP FI

The UNEP FI was formed in 1992 as a partnership between the UNEP and the global financial sector. The initiative's mission is to promote sustainable finance, and its work includes a strong focus on policy by cultivating discussion at the country level between finance practitioners, supervisors, regulators and policy makers; and by promoting financial sector involvement in processes such as the climate negotiations at the global level. The UNEP FI is known for creating the PRI and for pioneering the incorporation of ESG reporting

6 All dollar figures in this section are in Canadian dollars.

7 In work related to good corporate governance, on April 28, 2017, the FSB completed a peer review on the implementation of the G20/OECD Principles of Corporate Governance. The peer review evaluated how FSB member jurisdictions have applied the principles to publicly listed, regulated financial institutions, identifying effective practices and areas of progress in addition to gaps and areas of weakness.

in risk analyses. The UNEP FI has served as the secretariat for both emerging economies and G7 countries to develop sustainable finance road maps.

The UNEP FI is comprised of over 200 members, including banks, investors and insurers. Its Canadian members include AGF Investments Inc., Bank of Montreal, Manulife Financial, Scotiabank and Desjardins.

UNEP Inquiry into the Design of a Sustainable Financial System

The UNEP Inquiry into the Design of a Sustainable Financial System was conceived to support the transition to a green economy, and to support the alignment of the financial system in order to accelerate the process. To do this, the inquiry identifies best practice, and explores financial market policy and regulatory innovations that support the development of a sustainable financial system. Its findings were distilled into a global report, *The Financial System We Need*, which provides a detailed analysis of practice in over 15 nations and research across integral sectors and issues, such as banking, insurance, institutional investment and capital markets. There are opportunities to heighten the participation of Canadian financial actors in the UNEP Inquiry's work.

Representative Canadian Asset Ownership and Asset Management Financial Institutions

Addenda Capital

Addenda Capital is a Canadian investment firm managing over $24.5 billion (including insurance assets from The Co-operators). It is both a Responsible Investment Association (RIA) signatory and a Carbon Disclosure Project (CDP) member. In October 2015, Addenda became the first Canadian asset manager signatory to the Montreal Carbon Pledge, committing to disclose the carbon footprints of its investment portfolios. As a signatory, Addenda has assembled GHG emissions data for companies and will use it in investment decisions and discussions with companies regarding their GHG emissions and any associated climate change-related risks and opportunities. In addition to potential physical impacts and other climate change-related risks, Addenda appropriately considers GHG emissions within the context of anticipated regulatory changes.

Addenda's approach to sustainable investment focuses on three key areas: ESG integration, stewardship/proxy voting and promoting sustainable financial markets.

AGF

AGF is a Canadian investment management firm that is a member of UNEP FI's North American Task Force, and is a PRI, RIA and CDP signatory. AGF defines responsible investing as "an investment approach that integrates consideration of ESG matters into investment and stewardship activities with the objective of enhancing long-term investment performance."[8] Thus, as part of AGF's investment strategy, ESG risks and opportunities are identified, assessed and considered, as the company recognizes the potential for long-term positive influence on financial performance.

On September 23, 2015, AGF announced that the AGF Global Sustainable Growth Equity Fund was the first mutual fund in Canada to publicly disclose the fund's environmental footprint. This thematic fund invests in companies that are benefiting from the transition to a sustainable economy.

AIMCo

AIMCo is an institutional investment fund manager, with a portfolio totalling approximately $90 billion. AIMCo's approach to responsible investment includes the integration of ESG factors into analysis across all stages of investment decision making. AIMCo's responsible investment team engages with companies identified by their key ESG focus areas: climate change, worker rights and safety across the supply chain and shareholder rights. Its responsible investment team determines whether to engage with the company to encourage positive change, and when to cease engagement.

ESG focus areas for shareholder engagement include:

→ environment: disclosure of mitigating strategies for companies whose operations have a high impact on the environment;

8 See www.agf.com/static/en/files/about-agf/AGF-responsible-investmen-policy-EN.pdf.

- social: worker health and safety across the supply chain; and
- governance: clear obstacles to shareholder rights and alignment of investor and company interests.

British Columbia Investment Management Corporation (bcIMC)

bcIMC is one of Canada's largest institutional investors, managing more than $121.9 billion net assets. It is a signatory of PRI and a member of the CDP. As part of its responsible investment strategy, bcIMC has, as of 2015, exercised proxy voting in 2,069 meetings, engaged 365 public companies, voiced opinion on 10 policy issues — including climate change, disclosure and governance — and participated in eight PRI investment committees.

bcIMC operates within an in-house developed ESG integration framework, which, in addition to financial analysis, includes key performance indicators that have been identified for each ESG factor. bcIMC also provides products such as the Thematic Public Equity Fund, which invests in the low-carbon economy and other long-term, strategic themes; and the Indexed Global ESG Equity Fund, which holds securities with high ESG ratings relative to other companies in the same sector.

Colleges of Applied Arts and Technology (CAAT) Pension Plan

The CAAT Pension Plan provides secure defined-benefit pensions to 44,700 members from 38 employers in Ontario, Canada. CAAT is jointly sponsored by the College Employer Council, Ontario College Administrative Staff Association and OPSEU, and holds $8.5 billion in assets. CAAT is a member of CCGG, and is a signatory of PRI and CDP.

As part of CAAT's Responsible Investment Policy, investment managers are encouraged to consider ESG factors when looking at the risk and return potential of investments. To reinforce this principle, CAAT uses its proxy vote to encourage disclosure of ESG risks and to engage directly with the corporate management of those companies it invests in to encourage better ESG practices.

Caisse de dépôt et placement du Québec

The Caisse de dépôt et placement du Québec is a long-term institutional investor that manages funds primarily for public and parapublic pension and insurance plans. Caisse's approach to responsible investment is based on these principles: shareholder engagement, integration of ESG criteria in investment analysis and decision making and, in exceptional circumstances, exclusion of specific securities. Caisse encourages companies to disclose ESG-related information.

Caisse was the first institution in Canada to adopt a responsible investment policy, in 2004, guided by the UN-supported PRI and its six principles for responsible investment. Additionally, it is a signatory of CDP and a member of the CCGG.

The Co-operators

The Co-operators is a Canadian insurance and financial services cooperative with $44.9 billion in assets under administration, and serves as a member of UNEP FI's North American task force. In 2014, The Co-operators became the first Canadian insurer to sign the UN-supported PRI's Montreal Carbon Pledge, a commitment to measure and publicly disclose the carbon footprints of investment portfolios.

Like their investment manager Addenda Capital, The Co-operators employ an active-investing approach. The Co-operators measures and monitors the carbon footprint of its investments using two metrics: owned carbon emissions and weighted average carbon intensity (emissions per revenue generated). In 2016, The Co-operators' equity investments, corporate bond and preferred share investments "owned" a total of 188,814 tonnes of CO_2-equivalent GHGs emitted by companies in their portfolio.

OTPP

OTPP is an independent organization responsible for administering defined-benefit pensions for Ontario school teachers. Its pension fund is also invested, and, as such, the OTPP is one of the world's largest institutional investors. In this vein, the OTPP expects companies to provide relevant disclosures related to their material risks, including those that are climate related, as well as insights on the strategies their boards and executive teams are using to manage those risks.

Additionally, ESG factors that OTPP consider in its investment process include: air quality, climate change, energy use, water, food, health, safety, labour rights, human rights, political stability, treatment of foreign investors, shareholder rights, board independence, board diversity and executive compensation.

The OTPP is a signatory of the CDP and PRI.

OPTrust

OPTrust is a legal trust formed by a contractual agreement between OPSEU and the Ontario government, with net assets totalling $19 billion. It is a signatory to the UN-supported PRI, and, as such, has implemented a responsible investing program — the two key principles of which are the integration of ESG factors through the investment process and active ownership.

OPTrust is an active part of the discussion on climate change. OPTrust is engaged in the dialogue surrounding the TCFD's recommendations on climate-related financial disclosure (December 2016). Similarly, in 2016, OPTrust evaluated the impact of various climate change scenarios on their total fund in the medium and long term. OPTrust also partnered with Mercer to conduct the Portfolio Climate Risk Assessment to evaluate OPTrust's current practices on climate change risk and opportunities, and to identify areas of improvement.

RBC Global Asset Management (GAM)

RBC GAM is a member of UNEP FI's North American Task Force and International Corporate Governance Network, a founding member of CCGG and a signatory of PRI. As part of their PRI-guided responsible investment strategy and ESG integration, RBC's Corporate Governance and Responsible Investment (CGRI) team distributes monthly portfolio-level ESG analysis reports used to identify top-level ESG scores and/or ESG issues for approximately 80 funds. After its initial success, the CGRI team released a more thorough version of the reports that also provided ESG data from multiple providers, and marked any issuers with falling ESG scores.

The inclusion of ESG metrics into RBC GAM's quantitative analytical tools was also introduced in 2016. This enabled investment teams to view ESG metrics alongside traditional financial data in order to help bring ESG issues and opportunities to management attention.

Information Assurers, Academia and Regulators

Beyond these financial institutions, there are service providers to assist firms with continuous disclosure and assessing climate-related financial risk. These include Canadian practitioners from the service provider members of the TCFD, Deloitte, Ernst & Young, KPMG and Mercer. There are also efforts under way among professionals who assure the integrity of disclosure. Canada's Chartered Professional Accountants are engaged in the development of standards through the Accounting for Sustainability (A4S) initiative being led from the United Kingdom. The A4S network was established as a mechanism for finance professionals, including chief financial officers, to integrate ESG management into firms' strategic and business processes. In addition to Canada, the network is established in Europe, and expansion to Hong Kong, Australia and New Zealand is planned.

In addition, the Commonwealth Climate and Law Initiative based at Osgoode Hall Law School in Toronto is building on foundational work on ESG (Williams 1999) and the responsibility of regulators (Williams, forthcoming 2017). Foundational academic research also included interpretation of fiduciary duty and its implications on governance of both pension fund trustees and directors of public issuers (Waitzer and Sarro 2013).

Finally, regulators are engaged in fact-finding missions to establish foundations for green finance, including the current project by Canadian Securities Administrators to review the disclosure of risks and financial impacts associated with climate change (Canadian Securities Administrators 2017). The deputy governor of the Bank of Canada's recent speech, "Thermometer Rising — Climate Change and Canada's Economic Future" (Lane 2017), welcomed the work of the TCFD, stated the opportunities for green finance and reiterated the jurisdiction of the Office of the Superintendent of Financial Institutions.

Acronyms and Abbreviations

A4S	Accounting for Sustainability
bcIMC	British Columbia Investment Management Corporation
CAAT	Colleges of Applied Arts and Technology
CCGG	Canadian Coalition for Good Governance
CDP	Carbon Disclosure Project
CGRI	Corporate Governance and Responsible Investment
CPPIB	Canada Pension Plan Investment Board
CSA	Canadian Securities Administrators
ESG	environmental, social and governance
FCLT	Focusing Capital on the Long Term
FSB	Financial Stability Board
G20	Group of Twenty
GAM	Global Asset Management
GHG	greenhouse gas
$GtCO_2$	gigatons of carbon dioxide
IPCC	Intergovernmental Panel on Climate Change
NDCs	nationally determined contributions
OECD	Organisation for Economic Co-operation and Development
OPSEU	Ontario Public Service Employees Union
OTPP	Ontario Teachers' Pension Plan
PRI	Principles of Responsible Investing
RIA	Responsible Investment Association
TCFD	Task Force on Climate-related Financial Disclosures
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Financial Initiative

Works Cited

Bak, Céline, Amar Bhattacharya, Ottmar Edenhofer and Brigitte Knopf. 2017. "Towards a comprehensive approach to climate policy, sustainable infrastructure, and finance." G20 Insights. T20 Task Force on Climate Policy and Finance. www.g20-insights.org/policy_briefs/towards-comprehensive-approach-climate-policy-sustainable-infrastructure-finance/.

Berensmann, Kathrin, Ulrich Volz, Isabella Alloisio, Céline Bak, Amar Bhattacharya, Gerd Leipold, Hannah Schindler, Lawrence MacDonald, Tian Hulfang and Qingqing Yang. 2017. "Fostering sustainable global growth through green finance — what role for the G20?" T20 Task Force on Climate Policy and Finance. G20 Insights. www.g20-insights.org/policy_briefs/fostering-sustainable-global-growth-green-finance-role-g20/.

Bhattacharya, Amar, Joshua P. Meltzer, Jeremy Oppenheim, Zia Qureshi and Nicholas Stern. 2016. *Delivering on Sustainable Infrastructure for Better Development and Better Climate.* The Brookings Institution, the Global Commission on the Economy and Climate and the Grantham Research Institute on Climate Change and the Environment. December. www.brookings.edu/wp-content/uploads/2016/12/global_122316_delivering-on-sustainable-infrastructure.pdf.

Bouvet, Leanne, Pavel Kirjanas and Joshua Sheppard. 2016. "Global Asset 500 Index 2016: Rating the World's Investors on Climate Related Financial Risk." Asset Owners Disclosure Project. http://aodproject.net/wp-content/uploads/2016/05/AODP-GLOBAL-CLIMATE-INDEX-2016-view.pdf.

Canadian Securities Administrators. 2017. "Canadian Securities Regulators Announce Climate Change Disclosure Review Project." Press Release, March 21. www.securities-administrators.ca/aboutcsa.aspx?id=1567.

Carney, Mark. 2015. "Breaking the Tragedy of the Horizon – climate change and financial stability." Speech given at Lloyd's of London, London, England, September 29. www.bankofengland.co.uk/publications/Documents/speeches/2015/speech844.pdf.

Edenhofer, O., C. Flachsland and U. Kornek. 2016. *"Der Grundriss für ein neues Klimaregime."* ifo Schnelldienst 3/2016, 69. Jahrgang, 11–15.

G20 Finance Ministers and Central Bank Governors. 2016. "Communiqué: G20 Finance Ministers and Central Bank Governors Meeting." July 24. www.g20.utoronto.ca/2016/160723-finance.html.

———. 2017. "Communiqué: G20 Finance Ministers and Central Bank Governors." March 18. www.g20.utoronto.ca/2017/170318-finance-en.html.

G20 Green Finance Study Group. 2016. G20 Green Finance Synthesis Report. G20 Green Finance Study Group. http://unepinquiry.org/wp-content/uploads/2016/09/Synthesis_Report_Full_EN.pdf.

IPCC. 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Core Writing Team, Rajendra K. Pachauri and Leo Meyer, eds. Geneva, Switzerland: IPCC.

Lane, Timothy. 2017. "Thermometer Rising — Climate Change and Canada's Economic Future." Remarks by Timothy Lane, Bank of Canada, Montreal, Quebec, March 2.

OECD. 2016. Green Growth Indicators database. OECD.Stat.

United Nations Global Compact, United Nations Environment Programme and the secretariat of the United Nations Framework Convention on Climate Change. 2015. *Executive Guide to Carbon Pricing Leadership*. United Nations Global Compact. Caring for Climate Report. http://newsroom.unfccc.int/media/544105/carbon-pricing-executive-guide.pdf.

Verdolini, Elena, Céline Bak, Joël Ruet and Anbumozhi Venkatachalam. 2017. "Innovative green-technology SMEs as an opportunity to promote financial de-risking." T20 Climate Policy and Finance Taskforce. G20 Insights. www.g20-insights.org/policy_briefs/innovative-green-technology-smes-opportunity-promote-financial-de-risking/.

Waitzer, Edward J. and Douglas Sarro. 2013. "The Public Fiduciary: Emerging Themes in Canadian Fiduciary Law for Pension Trustees." Comparative Research in Law & Political Economy Research Paper No. 24/2013. Osgoode Hall Law School of York University. http://digitalcommons.osgoode.yorku.ca/clpe/271.

Williams, Cynthia A. 1999. "The Securities and Exchange Commission and Corporate Social Transparency." *Harvard Law Review* 112 (6): 1197–311.

———. Forthcoming 2017. "The Global Reporting Initiative, Transnational Corporate Accountability, and Global Regulatory Counter-Currents." *University of California Irvine Journal of International, Transnational, and Comparative Law*.

World Resources Institute. 2014. "6 Graphs Explain the World's Top 10 Emitters." World Resources Institute. www.wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters.

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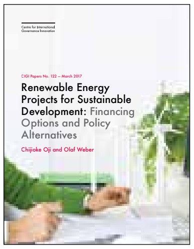
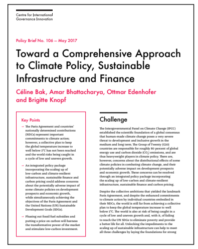

Renewable Energy Projects for Sustainable Development: Financing Options and Policy Alternatives
Chijioke Oji and Olaf Weber

Renewable Energy Projects for Sustainable Development: Financing Options and Policy Alternatives

CIGI Paper No. 122
Chijioke Oji and Olaf Weber

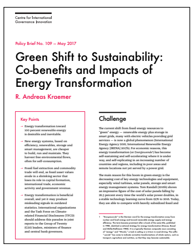
To further the dissemination of decentralized renewable energy in order to address climate change and access to energy in developing countries, finance is needed. This paper presents a summary of available options for financing renewable energy development and alternatives for policy implementation to support this process.


Toward a Comprehensive Approach to Climate Policy, Sustainable Infrastructure and Finance
Céline Bak, Amar Bhattacharya, Ottmar Edenhofer and Brigitte Knopf

Toward a Comprehensive Approach to Climate Policy, Sustainable Infrastructure and Finance

CIGI Policy Brief No. 106
Céline Bak, Amar Bhattacharya, Ottmar Edenhofer and Brigitte Knopf

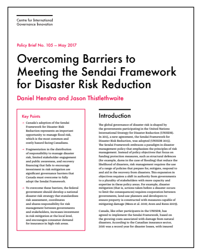
The Paris Agreement and countries' nationally determined contributions represent important commitments to climate action; however, a collective plan to keep the global temperature increase to well below 2ºC has not been reached and the world risks being caught in a cycle of low and uneven growth. This policy brief proposes a comprehensive approach that links inclusive growth, sustainable development and the climate goals.


Green Shift to Sustainability: Co-benefits and Impacts of Energy Transformation
R. Andreas Kraemer

Green Shift to Sustainability: Co-benefits and Impacts of Energy Transformation

CIGI Policy Brief No. 109
R. Andreas Kraemer

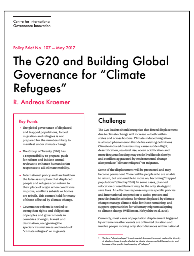
Energy transformation toward 100 percent renewable energy is desirable and inevitable. New energy systems, based on efficiency, renewables, storage and smart management, are cheaper to build, run and maintain. Energy transformation is beneficial overall, and yet it may produce misleading signals in outdated statistics. International organizations and the Task Force on Climate-related Financial Disclosures should address this paradox in joint reports to the G20 leaders, ministers of finance and central bank governors.


Overcoming Barriers to Meeting the Sendai Framework for Disaster Risk Reduction
Daniel Henstra and Jason Thistlethwaite

Overcoming Barriers to Meeting the Sendai Framework for Disaster Risk Reduction

CIGI Policy Brief No. 105
Daniel Henstra and Jason Thistlethwaite

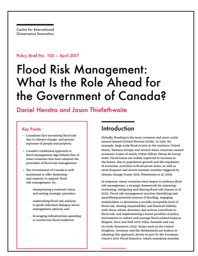
Canada's adoption of the Sendai Framework for Disaster Risk Reduction represents an important opportunity to manage flood risk, which is the most common and costly hazard facing Canadians. The federal government should develop a national disaster risk strategy that standardizes risk assessment, coordinates and shares responsibility for risk management between governments and stakeholders, increases investment in risk mitigation at the local level, and encourages consumer demand for insurance in high-risk areas.


The G20 and Building Global Governance for "Climate Refugees"
R. Andreas Kraemer

The G20 and Building Global Governance for "Climate Refugees"

CIGI Policy Brief No. 107
R. Andreas Kraemer

The global governance of displaced and trapped populations, forced migration and refugees is not prepared for the numbers likely to manifest under climate change. The G20 has a responsibility to prepare, push for reform and initiate annual reviews to enhance humanitarian responses to aid climate mobility. International policy and law build on the false assumption that displaced people and refugees can return to their place of origin when conditions improve, conflicts subside or homes are rebuilt. This cannot hold for many of those affected by climate change. Governance reform is needed to strengthen rights and obligations of peoples and governments in countries of origin, transit and destination, recognizing the special circumstances and needs of "climate refugees" or migrants.


Flood Risk Management: What Is the Role Ahead for the Government of Canada?
Daniel Henstra and Jason Thistlethwaite

Flood Risk Management: What Is the Role Ahead for the Government of Canada?

CIGI Policy Brief No. 103
Daniel Henstra and Jason Thistlethwaite

This policy brief examines flood risk management as a potential alternative strategy, with a specific emphasis on policy priorities for the Government of Canada. It begins by identifying problems associated with Canadian flood management, which suggest the current approach is unsustainable. In the second section, the discussion moves to the principles of flood risk management and presents two examples of their implementation in other states. The third section outlines three recommendations as to how the federal government could enable and support the adoption of flood risk management. The final section offers conclusions and priorities for further policy research.

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