

MAINSTREAMING CLIMATE CHANGE INTO FINANCIAL GOVERNANCE RATIONALE AND ENTRY POINTS

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Key Points

- Today, the financial sector is exposed to the physical risks associated with climate change and the impact of climate policies. Securing global financial and economic stability and scaling up low-carbon, climate-resilient investments are not conflicting, but rather mutually reinforcing, objectives.
- Although crucial, classic climate policies — such as carbon pricing, emission standards and technology objectives — do not appear sufficient to address the challenges from climate change that the financial sector is facing. Policies affecting the demand side and supply side of finance, as well as instruments matching supply and demand, need to be aligned with climate objectives to efficiently shift investments toward a low-carbon, climate-resilient economy.
- The financial sector and its governance bodies have an interest in integrating climate change issues into their risk and stability assessment frameworks, but seemingly differing mandates and the lack of institutional and intellectual links are hindering a timely and well-informed discussion.
- Once the link between climate change and the mandates of international financial sector governance and regulatory institutions is understood, the existing tool kits and processes of these institutions — common standards, principles and guidelines with various levels of legal force, country surveillance and technical assistance — present entry points to mainstream climate-related risks and opportunities into their core operations.

Introduction

The role of the financial sector, which itself consists of a diversity of subsectors such as banking and insurance, in the economy is to match savers and investors, and to manage risks in line with fiduciary duties. On the face of it, this is not dissimilar to the role of climate policies. Known as mitigation and adaptation policies to the climate change community, climate policies aim to avoid the risks of catastrophic climate change with potentially far-reaching impacts on the global economy by reducing greenhouse gas emissions and increasing economic resilience and reducing vulnerability to the impacts of climate change.

This policy brief argues that climate policy and financial governance agendas are interlinked. Policy coherence and mutual support between the two policy regimes are important to ensure the success of the fight against climate change, as well as the stability of the financial system, at both national and international levels. A lack of cooperation or misalignment between climate policy and financial governance can undermine the implementation of both agendas.

Mainstreaming climate change into financial governance is an emerging area of policy research and practice. This brief aims to provide a structured overview of the rationale and potential approaches to linking these two policy areas. It can be thought of as a pocket guide to understanding the common issues, rather than a comprehensive road map.¹

¹ This brief is based on two longer working papers published by the authors (see Morel et al. 2015).



About the Fixing Climate Governance Project

Project Leaders: **John Odell**, CIGI Senior Fellow and **David Runnalls**, CIGI Distinguished Fellow

Climate scientists agree that human activity has been changing our planet's climate over the long term. Without serious policy changes, scientists expect devastating consequences in many regions: inundation of coastal cities; greater risks to food production and, hence, malnutrition; unprecedented heat waves; greater risk of high-intensity cyclones; many climate refugees; and irreversible loss of biodiversity. Some international relations scholars expect increased risk of violent conflicts over scarce resources due to state breakdown.

Environmentalists have been campaigning for effective policy changes for more than two decades. The world's governments have been negotiating since 1995 as parties to the United Nations Framework Convention on Climate Change (UNFCCC). These talks have not yet produced agreements that are sufficiently effective in curbing greenhouse gas emissions or helping the world adapt to climate impacts. Some effort has shifted to partial measures by national governments, provinces, cities and private companies, which together, also fall far short of the need identified by science so far.

The Fixing Climate Governance project is designed to generate some fresh ideas. First, a public forum was held in November 2013. High-level workshops then developed a set of policy briefs and short papers written by experts. Several of these publications offer original concrete recommendations for making the UNFCCC more effective. Others make new proposals on such topics as how to reach agreements among smaller sets of countries, how to address the problems of delayed benefits from mitigation and concentrated political opposition, ways that China can exercise leadership in this arena and how world financial institutions can help mobilize climate finance from the private sector. These publications will all be published by CIGI in 2015.

Why Does Climate Change Matter to the Global Financial Sector?

Policy makers and practitioners hold two common misconceptions about the link between climate change and financial governance:

- climate change does not directly affect the financial sector and, thus, is not a concern for its regulators; and
- climate change does not fall within the mandate of financial sector governance.

This brief sketches a response to these misconceptions by identifying the common issues illustrating that securing global financial and economic stability and scaling up climate investments are not conflicting, but rather mutually reinforcing, objectives.

Changing Weather Conditions Affect Risk-adjusted Returns on Assets Worldwide

Extreme climate events already have significant and lasting economic impacts, and private businesses and policy makers are becoming increasingly interested in assessing the economic risks of climate change. There is no longer reasonable scientific doubt on the existence of global climate change or its anthropogenic origins (Intergovernmental Panel on Climate Change [IPCC] 2014). Extreme weather events have grown more frequent and severe over time (IPCC 2012). While projections of the macroeconomic costs of climate change in the long term are fraught with well-documented challenges, there is reasonable consensus among economists, scientists and politicians that unmitigated climate change will place a burden on the global economy. The risks associated with climate change are characterized by long-term uncertainty, but also irreversibility, which should be a motivation for timely policy action.

Scientific evidence shows that extreme weather events have significant and lasting economic impacts. For example, Standard and Poor's has identified climate change as an important risk to sovereign solvency (Standard and Poor's 2014). A recent National Bureau of Economic Research study has shown that in addition to short-term economic impacts, cyclones damage growth trends of affected countries over long periods (Hsiang and Jina 2014). This impact is estimated to reduce income by up to 15 percent over 20 years, a magnitude of damage similar to the impacts of a banking crisis. Cyclones alone are estimated to have a cumulated discounted cost of US\$9.7 trillion in income loss globally (ibid.). But more frequent and extreme cyclones would be just one out of the many consequences of unmitigated climate change (Deryugina and Hsiang 2014). Other climate-related events at stake include floods, storms and droughts, as well as sea-level rise.

Financial regulators and the private sector are increasingly recognizing potential damages and financial risks caused by

climate change. While risk assessment is a core business activity of the financial sector, it seems that climate related-risks are not addressed enough when compared with their impacts. Some regulators are starting to raise concerns about investors' exposure to physical climate risks. For example, the Bank of England and the US National Association of Insurance Commissioners have requested disclosures from insurance companies concerning exposure to climate change (*Financial Times* 2014a; 2014b). Insurance companies, for example, are reacting to the physical risks posed by climate change as part of their core operations, and increasingly also as investors.

These physical risks necessitate an organized dialogue between climate policy and financial governance experts. Climate policy makers could communicate their knowledge of the quantitative assessment of these risks to the entities involved in financial sector governance. In turn, financial sector regulators could promote disclosure and assessment of the impact of physical risks in financial terms by private financial sector actors, in particular the insurance sector.

Ignoring Climate Policy Risks Can Lead to a Bubble of High-carbon Assets

In the absence of a well-planned shift toward a low-carbon economy, neglecting externalities from investment decisions can result in a carbon bubble, similar to the sub-prime mortgage bubble that led to the recent global financial crisis.² Mitigating climate change requires a fundamental restructuring of economic activities at the national and international levels (SDSN and ISDI 2014). To limit global warming to 2°C, emissions would need to be reduced by about 40 to 70 percent by 2050 (compared to 2010 levels). This implies a shift in investment from high-carbon to low-carbon activities, as well as meeting additional investment needs in the order of five percent of total “business-as-usual” investment (New Climate Economy 2014). These changes in investment patterns would incur a proportional revaluation of financial assets.

This shift in investments and the financial risks it may entail are at the heart of the “stranded assets” concept (Bast et al. 2014; Robins 2014). The scientific basis of the stranded assets argument is watertight: there is a limited budget of carbon to burn under the 2°C scenario. Today, the carbon footprint of the assets and fossil fuel reserves held on company and sovereign balance sheets already exceeds the global carbon budget. Activities relying on carbon-intensive business models across the transportation, energy, buildings, industry and other sectors would suffer as a result of climate policies. A recent analysis estimates a value loss of US\$28 trillion in the fossil fuel industry alone over the next two decades under a 2°C scenario (Lewis 2014). According to the New Climate Economy report (2014), governments own 70

percent of expected stranded assets, indicating that the debate on stranded assets concerns solvency at both the company and sovereign level.

The financial sector has a large stake in avoiding disorderly “knee-jerk” policy and corporate responses to climate change. The ability of the financial sector to limit its exposure to the policy risks posed by climate change depends on whether governments consistently implement credible and efficient policies for this transition.³ Importantly, however, it also depends on whether financial institutions integrate these factors into their asset-management strategies in a timely manner. Currently, the risk of a significant policy-driven shift is not perceived as material, in part due to the lack of credibility of climate policies and the dominant short termism found in financial decision making. Put simply, most investors do not yet perceive sufficient evidence that the scientific constraint will be translated into market signals affecting risk-adjusted returns within three to five years, or even shorter quarterly time horizons on which they operate. As a result, by acting rationally, the financial sector is overexposing itself to climate risks due to government failure and industry operating standards.

A proactive dialogue between climate policy regulators and the financial sector could be started by increasing the visibility of the cost implied by climate policy for the financial sector. The signalling effect of credible national climate policy objectives and international climate agreements can be of crucial importance for reorienting the expectations and decisions of the financial sector. However, the financial governance community also has a role to play in ensuring the visibility of these signals and incentives by communicating and mainstreaming the cost of carbon, as well as associated risks introduced by climate policies into the analytical and asset allocation frameworks of the financial sector. To promote its active consideration of climate issues, a mandate was given to the Financial Stability Board by the Group of Twenty (G20) to convene public and private sector participants to review how the financial sector can take account of climate-related issues (G20 Finance Ministers and Central Bank Governors 2015).

A Conceptual Framework of Climate-related Policies along the Financial Supply Chain

Climate policies today — carbon pricing, emission standards and technology goals — focus on the demand side of capital for low-carbon development, but going beyond demand-side policies is required for effective climate policy making (Valverde

2 See www.carbontracker.org/report/carbon-bubble/.

3 Since the Coase theorem's inception, the role of government helping to integrate externalities in the market is increasingly shared. In order to mitigate the volatility risks of policies and to improve the signal quality of this externalities' integration, governments have to provide a clear future direction in the development of regulations, as well as coherence between sectoral policies affecting the climate.

2015). The financing challenge posed by climate change involves new actors, sectors and business models, requiring a combination of structural incentives (for example, carbon pricing across sectors) and tailored financial instruments. The real economy and its “financing engine” will have to simultaneously transition to a low-carbon model. This section outlines the necessary policy and regulatory interventions that can remove barriers to scaling up low-carbon, climate-resilient investments, as well as stimulate the “climate resilience” of the financial sector. These options are presented in a conceptual framework spanning three interlocking stages in the financial value chain.

Demand side: Downstream policies affect both the demand for capital and investors’ risk-adjusted returns. These policies include energy and carbon taxes, emission trading schemes, performance and technology standards, clean energy subsidies, etc. Evidence shows that weak demand-side policies represent the major barrier to greater investment in the low-carbon transition. This area is the core domain of climate policy, but financial sector governance institutions may also have a role to play.

Supply side: Policies that affect the incentive structures faced by capital providers, intermediaries and financial asset holders. In theory, investments in low-carbon assets would be efficiently scaled up as soon as demand-side policies are sufficiently stringent. However, an emerging body of research suggests that capital suppliers face other issues that affect their capacity to invest in low-carbon projects, such as barriers to long-term investment, in particular in infrastructure (be it climate friendly or not). For example, the Group of Thirty (G30) — a group of current and former financial and economic policy makers — noted that “action by national and international regulatory bodies will be essential in achieving this objective [of ensuring that] investors are better able to take a long-term horizon in their investment decisions” (G30 2013). The gap in long-term investment is also driven by a number of barriers arising from financial sector reforms as a result of the global financial crisis.⁴

There is a risk of a missed golden opportunity to mainstream climate change concerns in regulatory interventions intended to increase long-term investment. The concerns of climate change were notable by their relative absence in this research and policy work until recently, but developments are being made under the leadership of the G20 and the Organisation for Economic Co-operation and Development (OECD).⁵

Matching instruments and tools: Physical assets associated with the low-carbon transition need to be transformed into financial assets that match the risk, return and liquidity profile

of investors. This can present a particular challenge for a number of reasons:

- much of the required investment is in long-term, illiquid assets;
- significant investments need to be made by diffuse and often small-scale investors, who may not have access to pools of cheap capital; and
- investing in climate projects often requires a level of market and policy knowledge, and may have higher transaction costs, which may reduce their attractiveness to some investors, in particular institutional investors.

For example, most residential building renovations are small operations, financed by retail banks. Retail banks may often lack the capacity and incentives to assess the operation’s technical and financial performance. On the other hand, the payback from such renovations are often long, further discouraging retail banks from investing in the sector.

The challenge of matching supply and demand for low-carbon capital has created increasing interest in the development of specific financial instruments among regulators and financial intermediaries. Green bonds have been seen as a market-based solution for scaling up infrastructure financing by the International Organization of Securities Commissions (IOSCO), and have also attracted significant interest from investment banks in 2014 (IOSCO 2014). Other instruments are yieldcos, pooled listed or unlisted funds, equity market indices and retail-scale (i.e., household-scale) investment products in energy infrastructure.⁶ The financial sector governance community may have a particular role to play in the promotion, regulation and standardization of such instruments.

Three Entry Points

- Hedging against weather-related risks is a part of the insurance sector’s liabilities, but insurance companies should also consider climate-related risks in their asset portfolios. To support coordinated action at the international level, the International Association of Insurance Supervisors (IAIS) should promote best practice sharing among insurance regulators and supervisors across jurisdictions and establish common standards.
- International financial governance institutes are already providing technical advice on climate fiscal policy to their members on an ad hoc basis. These organizations should provide structural and harmonized policy advice as part of their core surveillance activities to support member governments in developing efficient national fiscal policies on carbon and energy in a coherent and coordinated manner.

4 This includes bank deleveraging and prudential regulation, which have constrained the ability of banks to lend long term. See Spencer and Stevenson (2013).

5 One example is ongoing OECD work on institutional investment in clean energy infrastructure.

6 One example is Germany’s “BürgerEnergiegenossenschaft.” See Poize and Rüdinger (2014).

- Monetary and banking supervision institutes have imposed more stringent capital adequacy requirements after the financial crisis, which provide a disincentive for banks and insurance companies' lending to long-term investments. Monetary and financial policy makers should ensure that these requirements do not impose unintended constraint on the supply of capital to low-carbon and climate-resilient infrastructure.

Insurance Companies and Supervisors

The insurance industry is the segment of the financial sector most directly impacted by the physical and policy-related risks posed by climate change. It is affected by climate change both on the liabilities and assets side. Mainstreaming climate risks in the insurance sector can provide an incentive for effective adaptation action, in the sense that adaptive actions can result in lower insurance premia. Reinsurance companies — such as Swiss Reinsurance Company Ltd and Munich Re Group — have been modelling changing weather conditions as part of their core operations as weather-related insurance providers. Last but not least, the insurance industry, as an investor, is also concerned with ensuring the robustness of their investment portfolios to climate-related changes in regulation.

Insurance companies and insurance supervisors are increasingly taking steps to mainstream climate change into their risk management policies. At the 2014 UN Climate Summit in New York, the global insurance industry committed to transform its mainstream asset management by placing more emphasis on climate risk, doubling climate-smart investments of the industry from the current US\$42 billion to US\$84 billion by the end of 2015, and continuous scaling up afterward to 10 times the current amount by 2020.⁷ The International Cooperative and Mutual Insurance Federation took the lead in this and other initiatives to highlight climate change as a global priority issue to its members. Insurance companies are increasingly including climate change in their risk assessment, but there is space for progress (AXA 2014).

The Climate Change Working Group of the US National Association of Insurance Commissioners (NAIC) aims to better understand insurers' exposure to climate change and the potential for new insurance products to address climate change. A survey on climate risks for insurers by Ceres and NAIC showed that the majority of insurers were not adequately mainstreaming climate concerns (Ceres 2014). Similar surveys have been produced in other jurisdictions. Moreover, there appears to be no current activity on climate change under the auspices of the IAIS.⁸

7 Other commitments made include creating a Climate Risk Investment Framework under the UN Hyogo Framework for Action for disaster risk management. See www.icmif.org/news/insurance-industry-double-its-climate-smart-investment-end-2015.

8 Based on a keyword search for climate change on the website.

The strongest action to date has been the Bank of England's request for insurance companies to disclose their climate risk exposure. An eventual common guidance on disclosure and risk mitigation, led by the industry regulator IAIS as part of a financial sector-wide initiative coordinated by the Financial Stability Board, would appear to be a fruitful line of work. Such an initiative could promote best practice exchange and learning at the national, regional and international level, and the harmonization of practices across jurisdictions and sectors.

Fiscal Policy Makers and International Organizations

Demand-side policies such as carbon pricing and subsidy removal are primarily the prerogative of national governments. However, there are domestic political economy constraints, such as the negative effects on fossil fuel industrial competitiveness and poor households. Policy advice and shared good practice could help to overcome these constraints. In addition, domestic fiscal policies can also have international spillover effects on energy and commodity prices. In the long-term, what is required is a coordinated transition to effective and convergent national carbon prices. As such, international cooperation, policy advice and shared good practice can help overcome or mitigate national constraints to implementing demand-side policies more efficiently. To this end, the Carbon Pricing Leadership Coalition — convened by the World Bank Group, the World Economic Forum and the We Mean Business Coalition — was launched at the UN Climate Summit in September 2014 to help implement a global call to put a price on carbon supported by 73 countries and more than 1,000 companies.⁹

International financial governance institutions, such as the International Monetary Fund (IMF), have become increasingly interested in the issue of carbon and energy fiscal policies. Occasionally, climate change has also been the subject of these institutions' country reviews. Technical analysis on the role of fiscal policy in mitigating greenhouse gas emissions, scaling up climate finance and fiscal consolidation has been conducted by the IMF (2013) and the OECD (2013a; 2013b), albeit on an ad hoc basis. The IMF has carried out country fiscal reviews in previous years,¹⁰ and the OECD has introduced indicators on climate change as part of its economic surveys in 2014 and 2015 ahead of the twenty-first meeting of the Conference of the Parties. However, there is currently a lack of a process whereby international organizations work regularly and in a coordinated way on advising countries on carbon and energy fiscal policies.

9 See www.worldbank.org/en/news/press-release/2014/09/22/73-countries-1000-companies-investors-support-price-carbon.

10 In Chile and Mauritius in 2011 and for Germany, Sweden, Turkey and Vietnam in 2012.

In particular, the IMF is in a position to provide expertise on low-carbon fiscal policy to its member countries as part of its regular surveillance and policy advisory activities, such as the Article IV consultations and the Fiscal Monitor. The extent to which the IMF could integrate climate change into activities such as Article IV consultation depends on the legal and substantive mandate for these processes. In convening initiatives on international climate fiscal policy coordination, organizations such as the IMF and OECD can learn lessons from corporate taxation. For example, the OECD and the G20 have jointly launched the Base Erosion and Profit Shifting initiative to combat the sub-efficient relocation of companies for tax incentives and the erosion of the tax base due to corporate tax competition between countries. An action plan under the initiative prescribes the development of a new set of standards to prevent double non-taxation, as well as international cooperation on more stringent transparency, data and reporting requirements.

The terms of reference for the IMF's policy advice activities was adjusted in 2012.¹¹ In the future, translating what the IMF is already doing on carbon and energy fiscal policy into its policy advice and surveillance procedures could provide a useful contribution to the emergence of stronger, more coherent and more coordinated national fiscal policies on carbon and energy. It would also help to ensure that climate change remains consistently on the agenda of such institutions and finance ministries.

Monetary Authorities and Financial Regulators

Ensuring an adequate supply of capital for climate investments has traditionally been addressed through targeted public finance. Political signals have also been sent, such as the commitment under the United Nations Framework Convention on Climate Change to collectively mobilize US\$100 billion per year to developing countries by 2020. Such policies and international commitments are indeed crucial for increasing and stimulating the supply of climate capital. However, there is a broader issue of aligning policies to increase the supply of short- and long-term capital to projects that are consistent with the 2°C climate objective.

Already, a number of policy interventions have been proposed in the policy literature and climate specific investment policy discussions.¹²

- **Macroprudential and banking supervision:** Following the mandate from the G20,¹³ the Financial Stability Board

could take leadership to revise capital adequacy standards for banks and insurers. The objective is to remove barriers to long-term infrastructure investments, as well as to incentivize investments in low-carbon projects, fossil fuel-intensive sectors and technologies.

- **Accounting and fiduciary:** Financial sector governance institutes should revise accounting standards to reduce focus on short-term, quarterly market performance. The objective is to favour a longer-term horizon in investment decisions, to encourage companies and investors to appropriately account for the long-term benefits of climate-friendly investments.
- **Market creation and regulation:** The IOSCO and other regulatory and supervisory authorities should support the development of standardized and regulated financial products such as bonds and securitizations,¹⁴ with the objective to match mainstream capital suppliers with tailored demand from low-carbon projects. They should also support harmonization of reporting standards across jurisdictions, to increase the transparency and credibility of the emerging green bonds market.
- **Monetary policy:** In an era of low interest rates, central banks and ministries of finance could consider the use of both conventional and unconventional monetary policies — such as specific rules for climate collaterals from commercial banks, or restricting existing quantitative easing programs to low carbon — to translate the signals of climate policies into financial market terms and to shift savings into productive investments.

An important first step would be to ensure appropriate integration of climate change mitigation and adaptation priorities into the ongoing work to mobilize long-term investment, particularly in infrastructure. One entry point could be the G20/OECD High-level Principles of Long-term Investment Financing by Institutional Investors.¹⁵

The Way Ahead: Dialogues on Climate Change and Financial Governance

This policy brief makes the case for a prudent integration of the climate change and financial governance agendas. Climate change is a long-term, structural issue that will affect the financial sector. Hitherto, not much has been done to explore how the agendas of climate and financial governance could be better aligned. There are areas where such a policy discussion

11 According to its Integrated Surveillance Decision, as part of the *Triennial Surveillance Review*.

12 Further elaboration on these recommendations can be found in Morel et al. (2015).

13 See <https://g20.org/wp-content/uploads/2015/04/April-G20-FMCBG-Communique-Final.pdf>.

14 Securitization is the process of taking an illiquid asset, or group of assets, and through financial engineering, transforming them into a security. A typical example of securitization is a mortgage-backed security, which is a type of asset-backed security that is secured by a collection of mortgages.

15 See www.oecd.org/daf/fin/private-pensions/G20-OECD-Principles-LTI-Financing.pdf.

could begin, without a fundamental adjustment to the mandate of financial governance institutions. Policies affecting the demand, supply and matching could assist in shifting financial sector practice toward alignment and integration of long-term climate objectives and risks.

To date, the policy interventions presented in this brief are discussed largely at a research level. One needs to be careful about distorting the fundamental purpose of financial regulation, which is to ensure the stability of the global financial system, rather than to direct investment toward specific sectors. In that perspective, a better integration of climate-related risks across investment decisions can be a first step, given that climate change poses systemic risks that must be addressed.

Moreover, since the 2008 crisis, financial policies have experienced a shift from system stabilization to showing greater concern for the health and recovery of the real economy. This has resulted in an increasing focus on the adaptation of financial regulation to promote investments in long-term productive assets and innovative firms. The need to align these investments with long-term climate change objectives and the risks of neglecting to do so should not be forgotten.

What is required is a well-informed dialogue between the financial governance and climate policy, based on a careful understanding of the potential contributions of each to the challenge of maintaining a resilient, efficient financial sector and a safer climate based on the core mandate and limitations of each community. It is hoped that this brief contributes to demonstrating the need for such a policy discussion, and opens avenues for how such a discussion might be organized.

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Works Cited

- AXA. 2014. "AXA and Climate Risks." www.axa.com/lib/axa/uploads/docsdd/2014_AXA_and_Climate_Risks.pdf.
- Bast, Elizabeth, Shakuntala Makhijani, Sam Pickard and Shelagh Whitley. 2014. "The Fossil Fuel Bailout: G20 Subsidies for Oil, Gas and Coal Exploration." Overseas Development Institute. www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9234.pdf.
- Ceres. 2014. *Insurer Climate Risk Disclosure Survey Report & Scorecard: 2014 Findings & Recommendations*. CERES.
- Deryugina, Tatyana and Solomon M. Hsiang. 2014. "Does the Environment Still Matter? Daily Temperature and Income in the United States." NBER Working Paper No. 20750. December. www.nber.org/papers/w20750.
- Financial Times*. 2014a. "BoE Demands Climate Answers from Insurers." *Financial Times*, October 27. www.ft.com/intl/cms/s/0/dedd1954-5bad-11e4-a674-00144feab7de.html#axzz3Osc7A6OL.
- . 2014b. "Bank of England to Examine Financial Risks Linked to Fossil Fuels." *Financial Times*, November 30. www.ft.com/intl/cms/s/0/189f21d8-7737-11e4-a082-00144feabdc0.html#axzz3Osc7A6OL.
- G20 Finance Ministers and Central Bank Governors. 2015. Communiqué. G20 Finance Ministers and Central Bank Governors Meeting, Washington, DC, April 16-17.
- G30. 2013. "Long-term Finance and Economic Growth." G30.
- Hsiang, Solomon M. and Amir S. Jina. 2014. "The Causal Effect of Environmental Catastrophe on Long-Run Economic Growth: Evidence From 6,700 Cyclones." NBER Working Paper No. 20352. July. www.nber.org/papers/w20352.
- IMF. 2013. "Energy Subsidy Reforms: Lessons and Implications." www.imf.org/external/np/pp/eng/2013/012813.pdf.
- IOSCO. 2014. "Market-based Long-term Financing Solutions for SMEs and Infrastructure." Research note prepared for the G20 Finance Ministers and Central Bankers. September. www.iosco.org/library/pubdocs/pdf/IOSCOPD452.pdf.
- IPCC. 2012. "Summary for Policymakers." In *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*. A special report of working groups I and II of the IPCC, 1-19. Cambridge, UK; New York, NY: Cambridge University Press.
- . 2014. *Fifth Assessment Report*. www.ipcc.ch/report/ar5/.
- Lewis, Mark C. 2014. *Stranded Assets, Fossilised Revenues*. Energy Transition & Climate Change. Kepler Cheuvreux. April 24. www.keplercheuvreux.com/pdf/research/EG_EG_253208.pdf.
- Morel, Romain, Sáni Zou, Ian Cochran and Thomas Spencer. 2015. *Mainstreaming Climate Change in the Financial Sector and its Governance*. IDDRI and CDC. www.cdclimat.com/Mainstreaming-Climate-Change-in.html.
- New Climate Economy. 2014. *Better Growth, Better Climate: The New Climate Economy Report: The Synthesis Report*. Global Commission on the Economy and Climate. Washington, DC. September. <http://static.newclimateeconomy.report/TheNewClimateEconomyReport.pdf>.
- OECD. 2013a. *Climate and Carbon: Aligning Prices and Policies*. www.oecd.org/environment/climate-carbon.htm.
- . 2013b. "Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels 2013." www.oecd.org/site/tadffss/.
- Poize, Noémie and Andreas Rüdinger. 2014. "Projets citoyens pour la production d'énergie renouvelable: une comparaison France-Allemagne." IDDRI Paper No. 01/2014. January. www.iddri.org/Publications/Collections/Idees-pour-le-debat/WP0114_NP%20AR_projets%20citoyens.pdf.
- Robins, Nick. 2014. "Integrating Environmental Risks into Asset Valuations: The Potential for Stranded Assets and the Implications for Long-term Investors." International Institute for Sustainable Development. www.iisd.org/publications/integrating-environmental-risks-asset-valuations-potential-stranded-assets.
- Spencer, Thomas and Jamie Stevenson. 2013. "EU Low-Carbon Investment and New Financial Sector Regulation: What Impacts and What Policy Response?" IDDRI Working Papers No. 05/2013. www.iddri.org/Publications/EU-Low-Carbon-Investment-and-New-Financial-Sector-Regulation-What-Impacts-and-What-Policy-Response.
- Standard and Poor's. 2014. "Climate Change Is a Global Megatrend for Sovereign Risk." Standard and Poor's.
- SDSN and ISDIR. 2014. *Pathways to Deep Decarbonization*. Sustainable Development Solutions Network and Institute for Sustainable Development and International Relations report. http://unsdsn.org/wp-content/uploads/2014/09/DDPP_Digit.pdf.
- Valverde, Giovanna. 2015. "Aligning Policies for the Transition to a Low-Carbon Economy." Presentation by Giovanna Valverde, Chief Negotiator UNFCCC, Ministry of Foreign Affairs, Costa Rica, to the Climate Change Expert Group, OECD, Paris, March 17.

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CDC Climat Research is the French Caisse des Dépôts' think-tank dedicated to help public and private decision-makers to improve the way in which they understand, anticipate, and encourage the use of economic and financial resources aimed at promoting the transition to a low-carbon economy.

The Institute for Sustainable Development and International Relations (IDDRI) is a non-profit policy research institute based in Paris. Its objective is to determine and share the keys for analyzing and understanding strategic issues linked to sustainable development from a global perspective. IDDRI helps stakeholders in deliberating on global governance of the major issues of common interest: action to attenuate climate change, to protect biodiversity, to enhance food security and to manage urbanisation. IDDRI also takes part in efforts to reframe development pathways.

Fixing Climate Governance Series



The Fixing Climate Governance project is designed to generate some fresh ideas. First, a public forum was held in November 2013. High-level workshops then developed a set of policy briefs and short papers written by experts. Several of these publications offer original concrete recommendations for making the UNFCCC more effective. Others make new proposals on such topics as how to reach agreements among smaller sets of countries, how to address the problems of delayed benefits from mitigation and concentrated political opposition, ways that China can exercise leadership in this arena and how world financial institutions can help mobilize climate finance from the private sector. These publications will all be published by CIGI in 2015.

Policy Options Could Increase Ambition in the 2015 Agreement

Fixing Climate Governance Policy Brief No. 1
Henrik Jepsen

Economy-wide targets for emissions reductions will be an indispensable element of a 2015 agreement, but reaching agreement on ambitious targets is notoriously difficult. It needs to include a mechanism that can facilitate and incentivize increased ambition over time, and which focuses on high-potential policy options that contribute to the same general goal: climate change mitigation.

Conducting Global Climate Change Negotiations: Harnessing the Power of Process

Fixing Climate Governance Policy Brief No. 2
Kai Monheim

Process itself — over and above the issues at stake — is a key determinant of negotiation success across all levels of climate change negotiation groups in the United Nations Framework Convention on Climate Change. The author offers six axioms for chairs of negotiation groups that may lead to finding common ground and avoiding deadlocks: brokering compromise while remaining as transparent and inclusive as possible; enhancing influence by acting impartially and recognizing cultural differences; managing the agenda to create momentum while clustering, prioritizing and linking issues; focusing debate using the chair's information advantage; steering individual negotiation sessions in a time-efficient way; and building trust by creating sheltered negotiation spaces that allow for frank and constructive dialogue.

Six Ways to Make Climate Negotiations More Effective

Fixing Climate Governance Policy Brief No. 3
Pamela Chasek, Lynn Wagner and I. William Zartman

This policy brief proposes six changes that could improve the negotiating process and facilitate consensual outcomes. These include using a single negotiating text; discontinuing “on-screen” negotiations; eliminating the norm that “nothing is agreed until everything is agreed” and dividing the climate change problem into pieces that may be more readily acceptable; giving negotiating roles to ministries besides foreign affairs; establishing a group of states to play the “regime-builder” role; and employing the leadership skills necessary to make this all happen.

Focus Less on Collective Action, More on Delayed Benefits and Concentrated Opponents

Fixing Climate Governance Policy Brief No. 4
Edward A. (Ted) Parson

Controlling climate change has significant collective-action aspects, but the importance of these has been exaggerated and efforts misdirected as a result — particularly regarding the feasibility and impact of leading actions to pursue large emission cuts by individual nations or subgroups. Serious climate action must confront other challenges, most importantly, delayed benefits and concentrated opponents. This policy brief sketches several specific approaches to addressing these challenges, which can be pursued nationally or internationally.

Central Banks Can and Should Do Their Part in Funding Sustainability

Fixing Climate Governance Paper No. 1
Andrew Sheng

Central banks, when purchasing financial assets, should consider selecting assets that will promote sustainability, including climate change mitigation and adaptation. Central banks not yet ready to factor social objectives into their decisions should at least incentivize bankers and asset managers to invest in climate mitigation activities and low-emission growth, as well as support a financial transaction tax to fund a new or established global fund for climate mitigation.

Available as free downloads at www.cigionline.org

CIGI PUBLICATIONS

ADVANCING POLICY IDEAS AND DEBATE



Canada's Coming Property Insurance Crisis

CIGI Policy Brief No. 57
Jason Thistlethwaite

In many areas across Canada, climate change will erode the conditions necessary for property insurance to remain available and affordable. This policy brief looks at the challenges facing the insurance system and presents policy recommendations aimed at sustaining and maximizing the insurance system and its benefits.



Submission to Ontario's Climate Change Discussion Paper 2015

Special Report

The International Law Research Program (ILRP) of the Centre for International Governance Innovation (CIGI) responds to select questions from Ontario's Climate Change Discussion Paper 2015, as part of a province-wide public consultation process by the Ministry of the Environment and Climate Change.



The Environmental Risk Disclosure Regime: Navigating Complexity in Global Financial Markets

CIGI Papers No. 47
Jason Thistlethwaite

In recent years, a plurality of different governance initiatives has emerged that are designed to expand the disclosure of environmental risk within financial markets. The emergence of these initiatives represents an important policy development, and it has the potential to reduce environmental risk within the financial sector by incentivizing investments in sustainable economic activity capable of long-term value creation. Unfortunately, environmental risk disclosure has yet to be assessed as a field of governance activity in addition to its potential effectiveness in improving disclosure within financial markets.



Law, Governance and Climate Change: An International Law and Policy Workshop in the Context of the UNFCCC COP 20

Conference Report

The Centre for International Sustainable Development Law hosted the workshop, in collaboration with the Pontificia Universidad Católica del Perú and the Centre for International Governance Innovation, along with numerous other partners. More than 50 scholars, policy makers, experts, practitioners and stakeholders were convened from more than 40 countries to explore emerging human rights, economic and environmental laws, policies and practices linking climate change with sustainable development, and to chart a new international research and education agenda.



Development of Sustainability and Green Banking Regulations

CIGI Papers No. 65
Adeboye Oyegunle and Olaf Weber

Interest in sustainable and green financial regulations has grown in recent years due in part to increasing climate-change risks for the financial sector alongside a need to integrate this sector into the green economy. This paper recalls sustainability's course from fringe issue to central concern, and examines seven countries, all emerging and developing, where regulatory approaches have been implemented successfully.



The Environmental Goods Agreement: A Piece of the Puzzle

CIGI Papers No. 72
Patricia M. Goff

Can a trade agreement help achieve environmental goals? This paper explores the potential of the Environmental Goods Agreement (EGA) to produce a more positive outcome than previous attempts at environmental chapters within trade agreements. The EGA, while met with challenges, is an important piece of a complex environmental governance puzzle. The question is not whether the EGA will have an impact, but how much of an impact.

About CIGI

The Centre for International Governance Innovation is an independent, non-partisan think tank on international governance. Led by experienced practitioners and distinguished academics, CIGI supports research, forms networks, advances policy debate and generates ideas for multilateral governance improvements. Conducting an active agenda of research, events and publications, CIGI's interdisciplinary work includes collaboration with policy, business and academic communities around the world.

CIGI's current research programs focus on three themes: the global economy; global security & politics; and international law.

CIGI was founded in 2001 by Jim Balsillie, then co-CEO of Research In Motion (BlackBerry), and collaborates with and gratefully acknowledges support from a number of strategic partners, in particular the Government of Canada and the Government of Ontario.

Le CIGI a été fondé en 2001 par Jim Balsillie, qui était alors co-chef de la direction de Research In Motion (BlackBerry). Il collabore avec de nombreux partenaires stratégiques et exprime sa reconnaissance du soutien reçu de ceux-ci, notamment de l'appui reçu du gouvernement du Canada et de celui du gouvernement de l'Ontario.

For more information, please visit www.cigionline.org.

CIGI Masthead

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