

FINANCING A SUSTAINABLE FUTURE

THE MACRO-FINANCIAL FEEDBACK LOOP OF ENVIRONMENTAL CHANGE

Scientific evidence demonstrates that human activity is directly undermining the climate and ecological systems on which the wellbeing of our societies and our economies depend. These risks are also increasingly recognized by financial markets, treasury departments, central banks and financial institutions.

Mounting environmental pressures reduce the capacity of the environment to continue to produce services and benefits to the economy and human wellbeing, threatening macroeconomic performance and undermining past and future growth.

For example, extreme weather events cause damage to homes and displace residents, and sea level rise affects the value of coastal infrastructure, thereby requiring increasing investments.

Delivering long-term sustainable growth and prosperity for people and the planet requires decision makers to incorporate new risks into their financial planning. To achieve financial and fiscal stability, they need to move 'beyond GDP', placing greater emphasis on natural capital, rather than just income flows.



Understanding risks and liabilities



Measuring public sector assets and liabilities



Analyzing potential future revenues



Ensuring financial stability and wellbeing

MEASURING AND MANAGING NATURAL CAPITAL AS PART OF BROADER ECONOMIC STRATEGIES

The SEEA statistical framework exposes potential risks and opportunities within the economy. It provides decision makers with a more comprehensive and holistic information base on the use, allocation and movement of natural capital across the economy.



The SEEA-Central Framework provides data on natural capital. It can inform risks, e.g. how quickly natural resources are being used by which industries. It provides insight on impacts, such as the generation of greenhouse gas emissions. The SEEA data also enables analysis of environmental protection expenditures, taxes and subsidies.

The SEEA-Experimental Ecosystem Accounting takes an ecosystems perspective. It demonstrates how our ecosystems contribute to economic performance and societal wellbeing. The accounts allow users to include ecosystem services in economic and environmental impact analyses.



4 WAYS OF COMBINING THE SEEA WITH INFORMATION ON PRODUCED AND FINANCIAL CAPITAL

1 Just as produced and human capital can be included in macroeconomic models, SEEA accounts organize natural capital information so that it can be readily incorporated into the models that governments already use on a regular basis.

2 The SEEA records environmental protection expenditures such as for waste treatment, biodiversity conservation and pollution prevention. Assessing the level of payments and who finances these expenditures helps decision makers to anticipate future liabilities.

3 SEEA accounts on environmental taxes inform effective fiscal policy that also supports the environment. They facilitate both an understanding of the potential for tax revenues and the use of fiscal policy to correct market failures and incentivize innovation.

4 Using the same conceptual basis as the System of National Accounts (SNA), the SEEA allows for the formulation of integrated policies, enabling users to explore the environmental and economic impacts of different policy options.

INCORPORATING ENVIRONMENTAL RISKS INTO THE BALANCE SHEETS – ASKING THE RIGHT QUESTIONS

The World Economic Forum consistently lists climate and environmental change among the top five global risks in terms of both likelihood and potential impact. The environment-related risks impact macroeconomic performance in at least three ways:



Physical risks reflect the cost of adaptation to environmental depletion, degradation and a changing climate. They include the costs of restoring natural capital, replacing ecosystem services or adapting to depleted natural capital or natural disasters.



Litigation liability risks result from people using the courts to seek compensation and justice from private and public organizations who knowingly undertook activities which have undermined their livelihoods.



Transition risk focuses on disruption and valuation losses across the economy which result from delayed or rushed attempts to transition to sustainability. Tipping points and threshold effects can lead to abrupt shocks.

What needs to be done to 'green' the financial system?

What natural capital risks do our economies face?

What impacts do our economic policies have on ecosystems and the services they provide?

What are our total current climate impacts and what is our exposure to climate risk?

What sectors should be targeted for a low-carbon transition?

ANALYZING EFFECTS OF A FREE-TRADE AGREEMENT ON CANADA'S ENVIRONMENT

Before passing the Canada-EU Comprehensive Economic and Trade Agreement (CETA), the Canadian Department of Foreign Affairs, Trade, and Development analyzed the net impact of increased bilateral trade with the European Union on Canada's environment, which was required by law. To carry out this analysis, they used a general equilibrium model combined with information from the SEEA accounts and looked specifically at:

- The **scale effect** quantifying the impact of expanded economic activity from the CETA on the environment

- The **composition effect** due to changes in the economic structure i.e. sectors and products which either diminish or increase in importance
- The **technical effect** caused by changes in technology

The quantitative analysis showed that the impact of both scale and composition effects on GHG emissions, energy use and water use would be minor, and even less for the technical effects. These results were used to assist the negotiations of the CETA trade deal, which was passed.

Summary of Environmental Impacts of the Canada-EU CETA

	Scale Effect	Composition Effect	Technical Effect	Total Effect	Total Effect/Total emissions and depletion in Canada (%)
GHG Emissions (in kilo tonnes of CO2 Equivalent)	1,791.9	-369.3	-155.3	1,267.3	0.165%
Energy Use (in terajoules)	51,820	20,835	-803.8	22,282.4	0.187%
Water Use (in thousands of m ³)	212,401	174,817	N/A	104.1	0.275%

Source: Canada, Global Affairs Canada (2017)

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Please visit seea.un.org, where you can find more information and e-learning on the SEEA and its policy applications.

Comments and questions are welcome.

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System of Environmental Economic Accounting