

SEEA-CF Policy Applications

Rob Smith, Principal
Midsummer Analytics
rob@midsummer.ca

**Training on application of UNFC
for sustainable resources
management**

19–20 June, 2019

Nur-Sultan, Kazakhstan

midsummer.ca





Overview

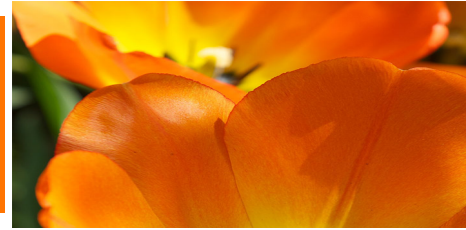
- General observation on policy use of accounting systems
- Generic examples of policy applications of the SEEA-CF
- Country examples

General observations



- Information from the SEEA can be used to:
 - Analyze the impact of economic policies on the environment and vice versa
 - Provide quantitative information for policy design and evaluation
 - Develop indicators that express the environment-economy relationship
 - Monitor the UN Sustainable Development Goals

General observations



- It is not always easy to trace a direct route between statistics and policy decisions
 - Statistics are used in many ways by many users, some of which are unknown
- To date, the most policy relevant environmental accounts seem to be those related to climate change, as this is a policy issue that transcends all borders
 - Energy use accounts
 - Greenhouse gas emissions accounts
 - Environmental taxes and subsidies accounts
- The relevance of other accounts varies from country to country

General observations



- National sustainable development strategies provide a clear policy link for environmental accounts in several countries
- SDGs provide a clear link at the international level
- The concept of “green growth” being promoted by the OECD and UNEP currently is also a clear policy link for the accounts

General observations



- Most environmental accounts are released annually (or less frequently) and lack of timeliness can be a concern
 - Canada and the Netherlands are the only countries to produce quarterly environmental accounts
 - Higher frequency and improved timeliness enhances relevance
- Environmental accounts are well suited to economic modeling because they follow the framework of the national accounts
 - Policy and research institutes that conduct modeling are, therefore, frequent users

General observations



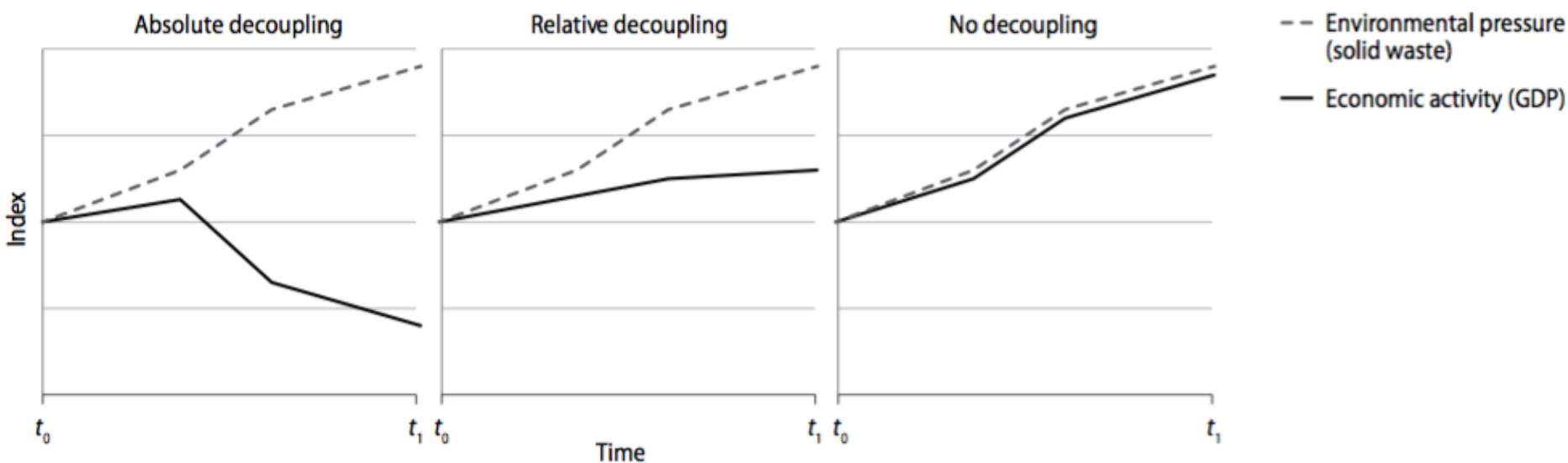
- Indicators are key for policy
 - SEEA-CF offers many kinds of indicators
 - Efficiency indicators
 - Compare trends in economic activity such as value-added, income or consumption with trends in specific environmental flows such as emissions, energy and water use and flows of waste
 - Intensity (productivity) indicators
 - Ratio of the environmental flow to the measure of economic activity (productivity is the inverse)



Generic examples

Measuring decoupling

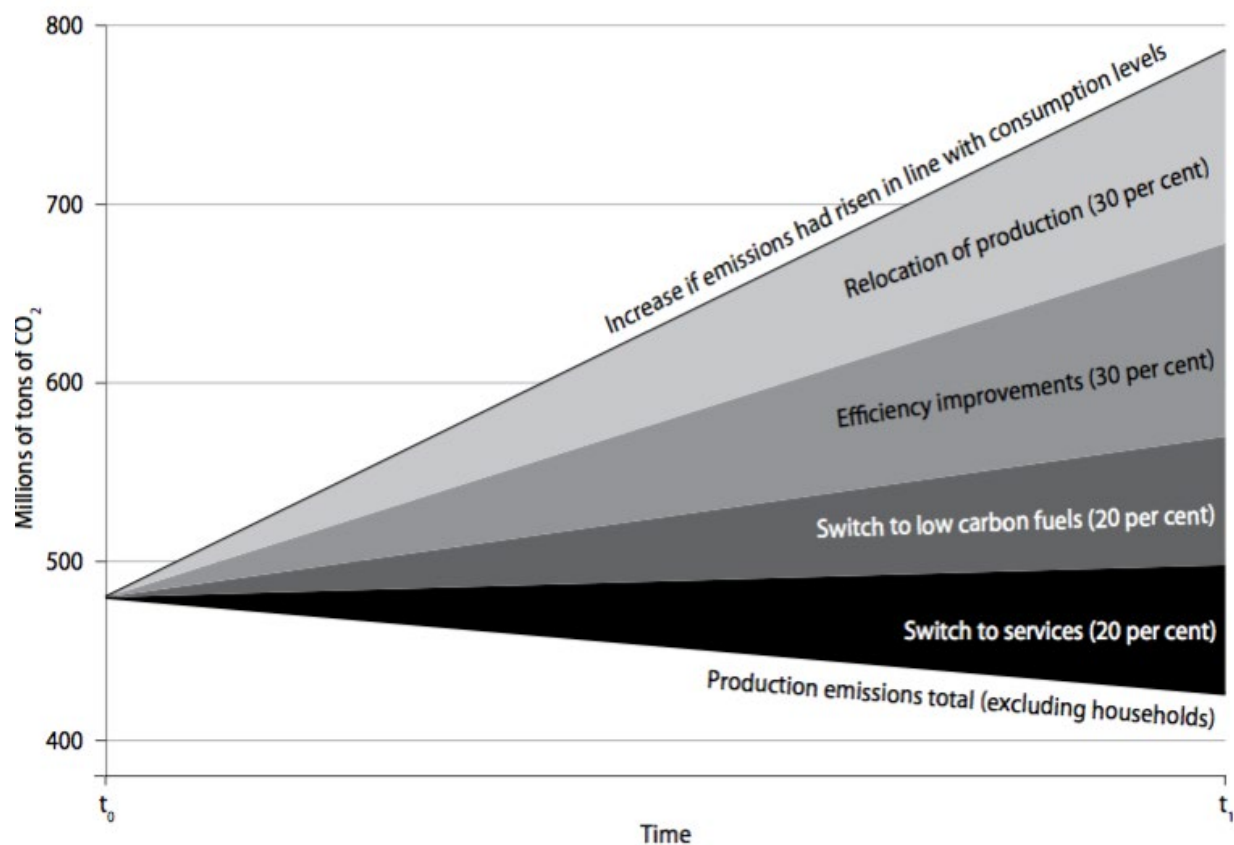
- Decoupling occurs when growth of an environmental pressure is less than its economic driving force (e.g., real GDP)
- Can be either absolute or relative
 - *Absolute*: when growth in environmental pressure is flat or decreasing while economic activity is increasing
 - *Relative*: when the growth in environmental pressure is positive but less than growth of the economic variable



Decomposition analysis

- Decomposition analysis is used to account for the factors underlying changes in environmental pressure
- Typical factors analyzed include changes in the size of the economy, changes in economic structure, changes in energy intensity and technological improvements in production processes

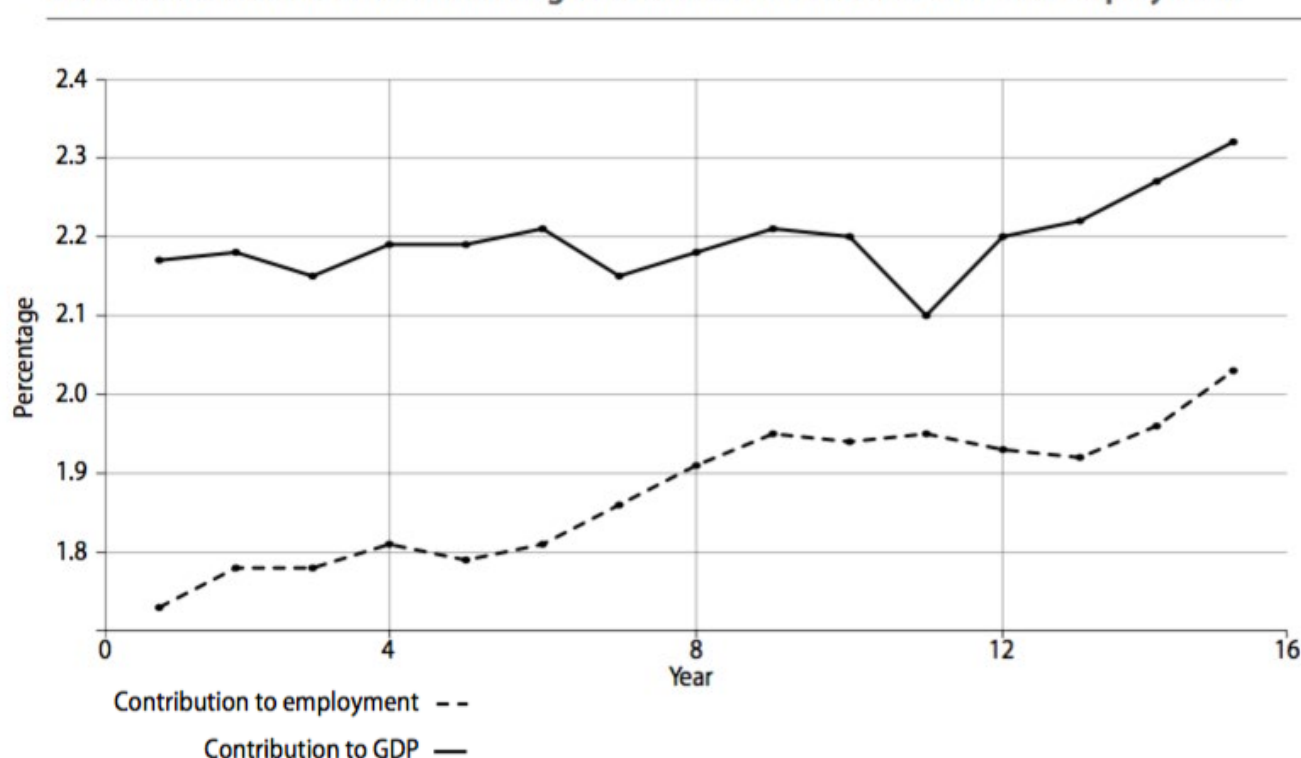
Decomposition of changes in CO₂ emissions



Benefits of green growth

- Many countries are interested in measuring the contribution of the environmental goods and services sector to “green growth”
- EGSS Accounts can be used to do this by measuring the contributions of EGSS to GDP and employment
 - Though it should be noted that measuring employment in the EGSS is not straightforward

Contributions of the environmental goods and service sector to GDP and employment





Country examples

Australia - Measuring sustainability

- Measuring sustainability in terms of real per capita capital stocks

Australia – *Per capita* volume measures of capital, 1990-2015 (Australian dollars)

	1990	1995	2000	2005	2010	2015
Produced capital	150,043	158,185	173,379	189,549	208,549	229,973
Net foreign financial assets	-17,539	-22,250	-25,304	-31,724	-37,024	-37,223
Natural capital	258,685	260,913	262,234	259,228	252,082	252,306

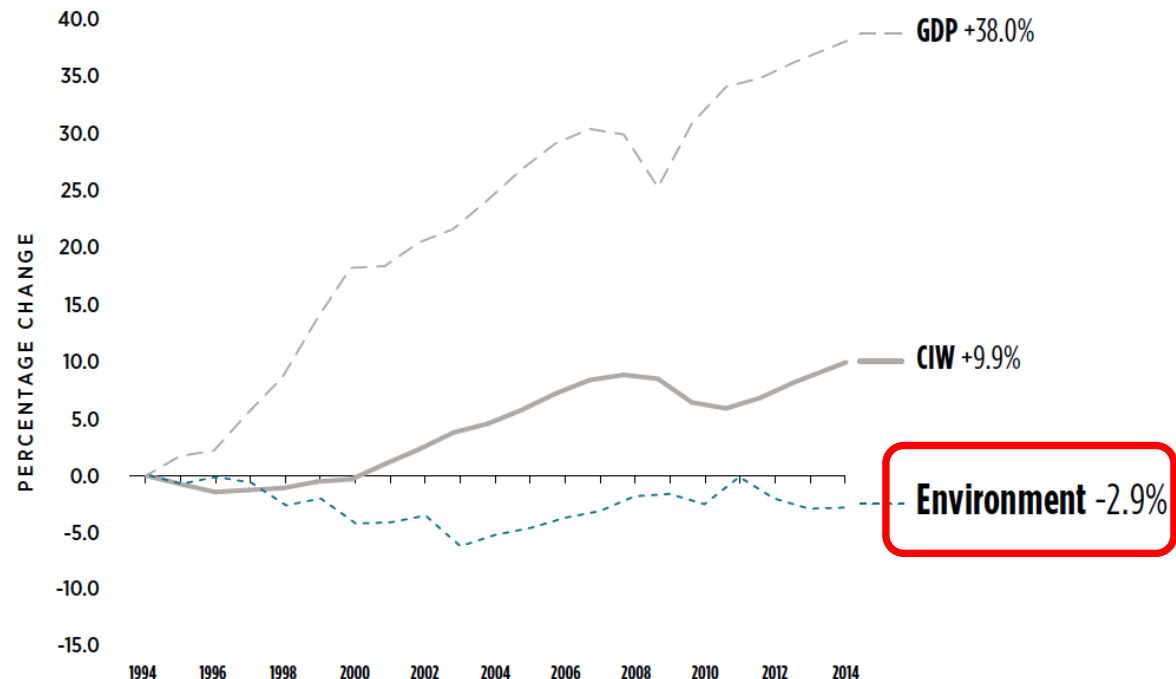
Canada – Modelling GHG emissions



- In the 1990s, Canada's national Ministry of Finance used data from the physical energy use and greenhouse gas emissions accounts in a macroeconomic model of climate change scenarios it designed for the Canadian Analysis and Modelling Group
- The fact that the accounts were consistent with the SNA made it straightforward for the Ministry to use the data

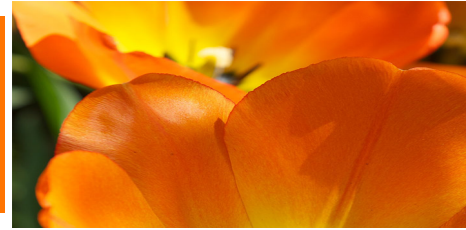
Canada – Index of Well-being

- The Canadian Index of Well-being (CIW) is a set of indicators of well-being across a number of domains, including environment
 - It is published by a group of researchers from the University of Waterloo
- The CIW uses data from the environmental accounts to measure several indicators
- Overall, the CIW finds that environmental well-being declined by 2.9% from 1994 to 2014



Source: Canadian Index of Well-being 2016
(<https://goo.gl/r8JMk9>)

Germany – Sustainable development strategy



- Environmental accounts play a major role in informing the German National Sustainable Development Strategy
 - Of the 21 indicators in the strategy, 3 are derived directly from the German environmental accounts and another two are based on a combination of environmental and national accounts data
 - At the request of the Federal Government, the Federal Statistical Office conducts an analysis of how the indicators have changed since the last report and of the progress made in achieving the specified goals

Netherlands – Water accounting

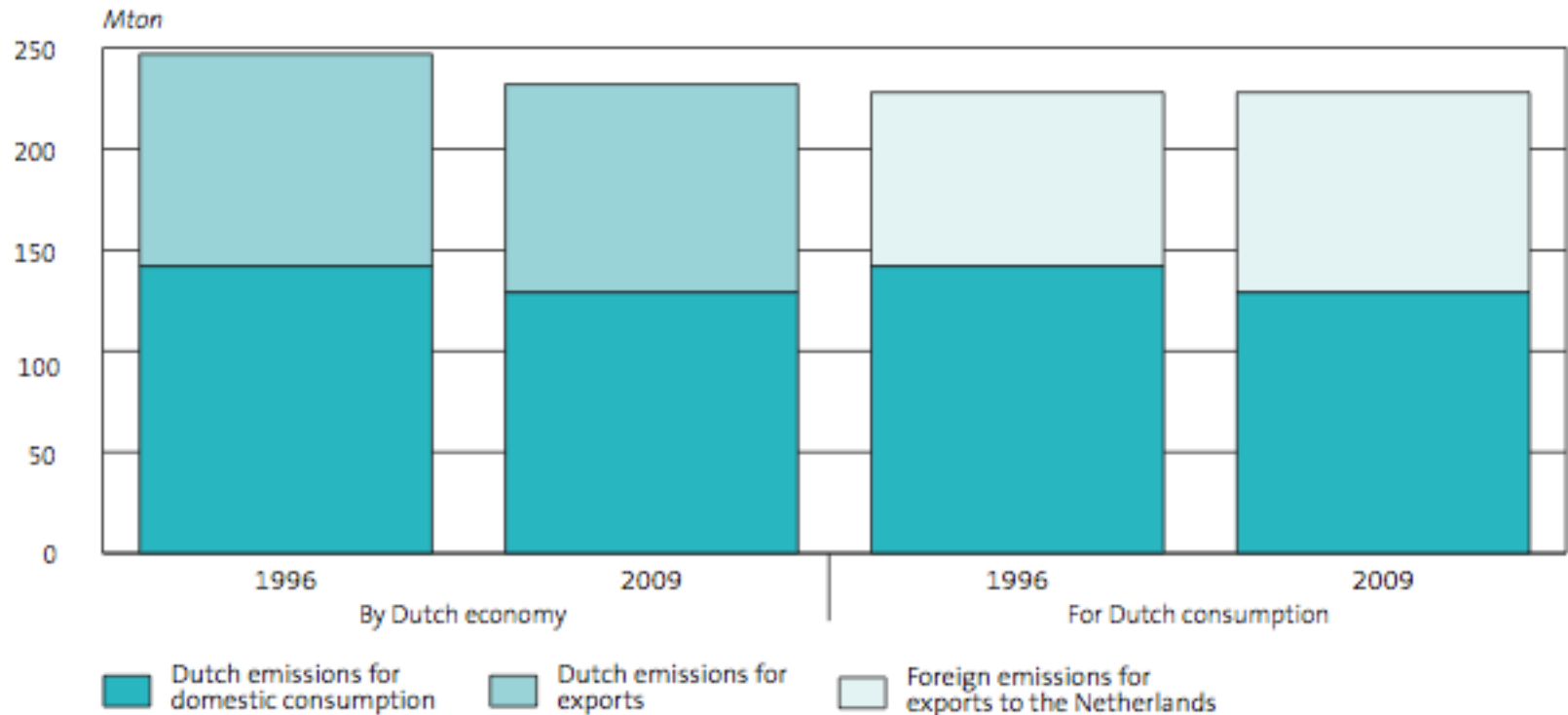


- In the Netherlands, there is growing demand for information on the economic value of water and the wider economic consequences of water policy and management as a result of the European Water Framework Directive
- Statistics Netherlands has developed a National Accounting Matrix including Water Accounts in response, consisting of the following components:
 - physical flow accounts for water use
 - monetary flow accounts for river basins
 - water emissions accounts for nutrients, heavy metals and other pollutants
 - assessment of available fresh water resources
- Integration of data at river basin level makes the water accounts an important information tool to support policy and decision making
- The water accounts have been directly used by the Ministry for Infrastructure and Environment for reporting to the Water Framework Directive

Netherlands – Greenhouse Gas Emissions

- Greenhouse gas emissions as a result of Dutch consumption remained stable between 1996 and 2009. Although the domestic emissions fell by 13 Mton, foreign emissions required to produce Dutch imports increased by the same amount.

Greenhouse gas emissions from production and consumption



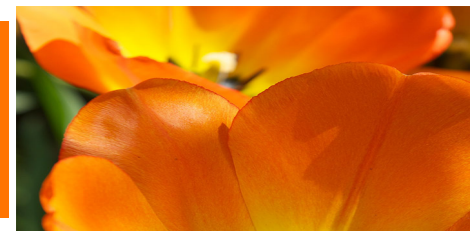
Source: Statistics Netherlands, Environmental accounts of the Netherlands 2009.

Norway – Sovereign Wealth Fund



- Arguably no other country has embedded natural capital thinking as deeply into its economic policies as Norway
 - Norway intentionally sets aside large parts of the rent from the exploitation of its oil reserves
 - By doing so, it has created the largest sovereign wealth fund in the world – worth about \$US1 trillion, or \$US185,000 per citizen
 - This fund is used by Norway to invest in financial and produced assets around the world
 - These assets are intended to provide a source of income for future Norwegians when their oil resources have been depleted
 - This is a “textbook” example of the integrated management of all national assets to ensure long term sustainability

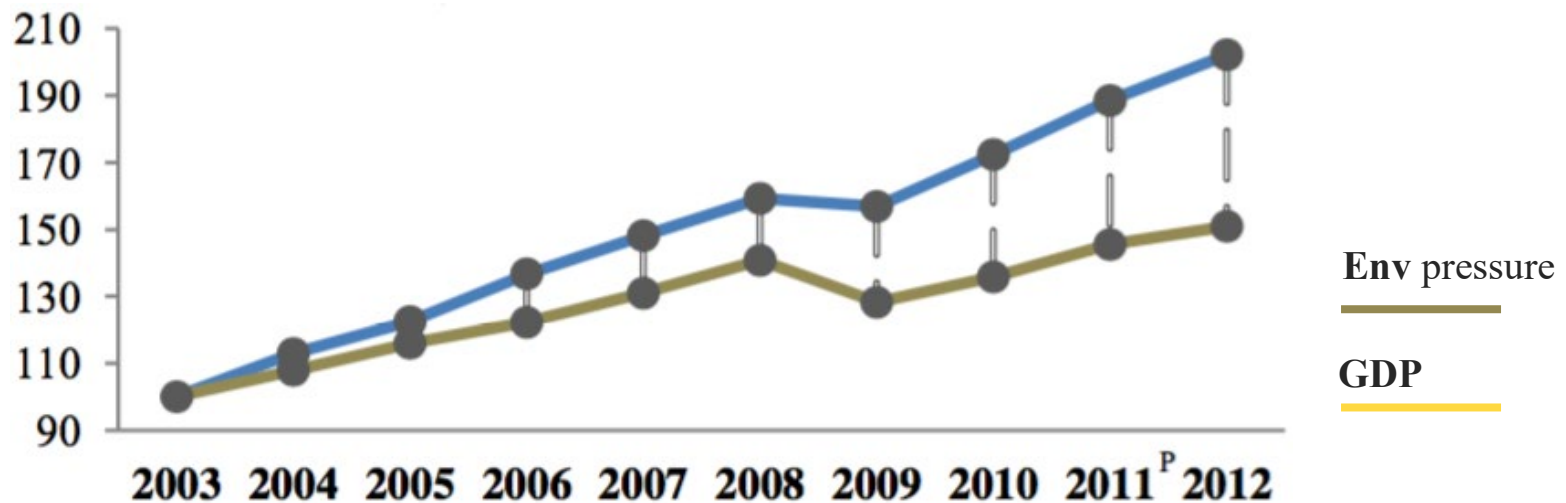
Sweden – Economic forecasting



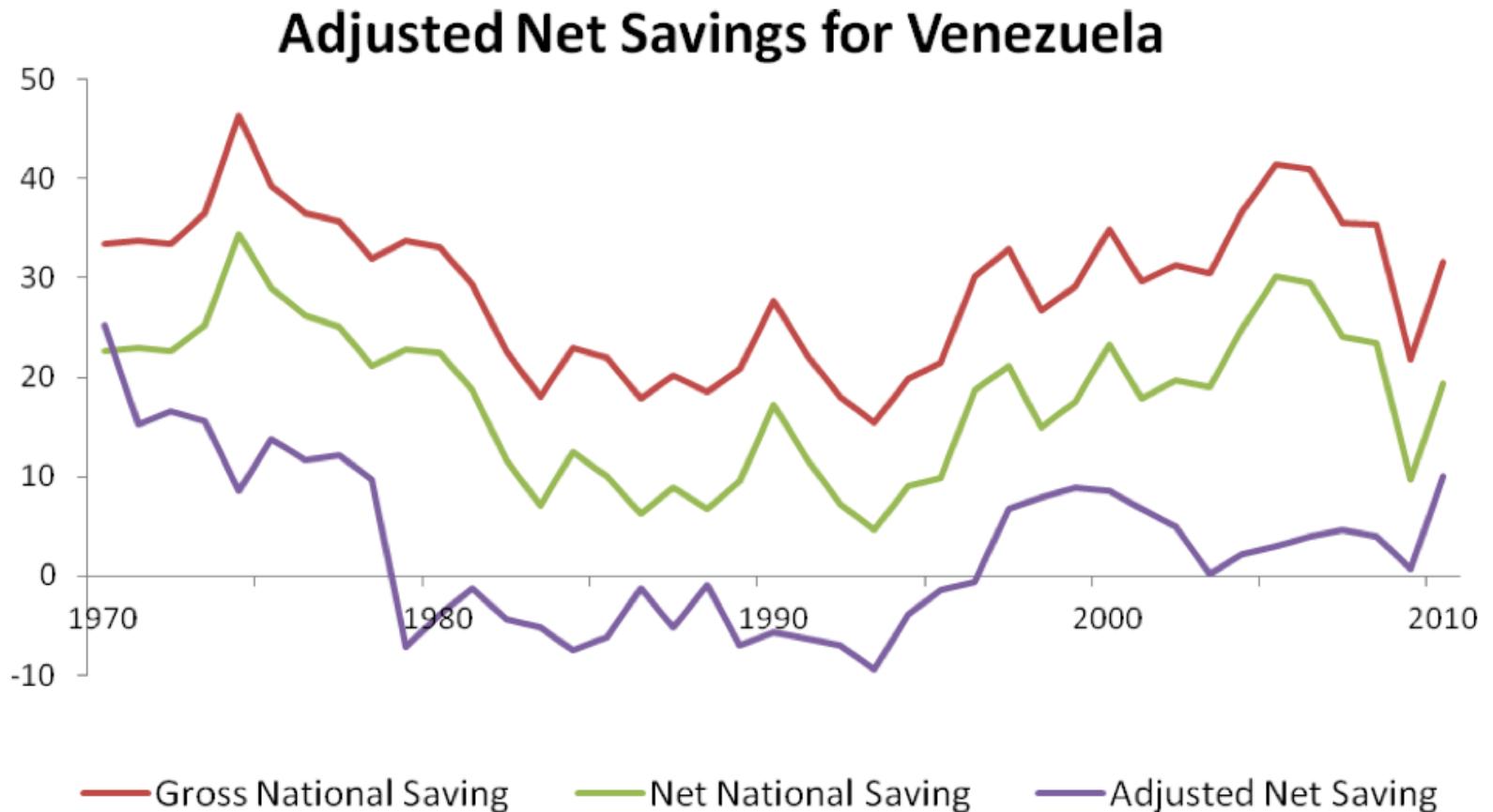
- The Swedish Ministry of Finance prepares medium-term economic forecasts based on a general equilibrium model developed at the Swedish National Economic Research Institute that includes some environmental dimensions
 - The model draws on energy data and air emission data from the Swedish environmental accounts
 - It also is linked to transportation models, since transport is a major source of pollutant emissions and a key input into production
- Other uses of the accounting data feed into high-visibility public debates about tax policy, climate change, environmental policy and economic growth
 - National commissions on climate change
 - The Committee on Environmental Objectives,
 - The Committee for Growth and Environment,
 - Studies related to green taxes

Mexico – Decoupling of total environmental pressure

- Mexico has used its environmental accounts to demonstrate the relative decoupling of economic growth from depletion and degradation of natural capital
- From 2003 to 2012, GDP increased by 102% while environmental pressure increased by only 51%



Depletion-adjusted net national savings, Venezuela



Source: World Bank, 2012, *Contribution to Beyond GDP "Virtual Indicator Expo"*, Environment Department, Washington (http://ec.europa.eu/environment/beyond_gdp/download/bgdp-ve-ans.pdf)

Report on users and uses of environmental accounts



- In 2015, the World Bank published a detailed report on the users and uses of environmental accounts in leading countries
 - Australia, Canada, Denmark, Finland, France, Germany, Italy, Mexico, Netherlands, Norway, Sweden, United Kingdom
 - <https://www.wavespartnership.org/sites/waves/files/documents/PTEC1-%20Users%20and%20Uses%20of%20Environmental%20Accounts.pdf>

Thank you

Rob Smith, Principal
Midsummer Analytics
Ottawa, Canada

rob@midsummer.ca

Skype: smitrob1965
+1-613-716-5230

