

7. SDG 13, the SEEA and New Zealand's missing carbon tax

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Summary

After more than 25 years of work on environmental accounting, there is a need for demonstrable policy applications. In today's context, this includes how environmental accounting can contribute to domestic policies and the Sustainable Development Goals. The case of New Zealand's carbon tax is almost such an example. Between 2001 and 2004, Statistics New Zealand used the System of Environmental-Economic Accounting (SEEA) to draw together data from a range of sources to form a comprehensive set of energy and greenhouse gas emissions accounts including both the monetary and physical flow tables. Together, these data formed the basis of carbon tax working papers prepared by the New Zealand Treasury, and the carbon tax became an important issue in the 2005 election and subsequent formation of a government. Based on the New Zealand experience, this paper provides an insight into the role that statistics and environmental accounts can have in policy making, highlighting the need to be cautious with regard to expectations around the application of environmental accounting to policy.

7.1 Introduction

The development of New Zealand's first energy accounts using the System of Environmental-Economic Accounting (SEEA) (UN et al 2014) shows the possibility of using the SEEA to support powerful policy analyses that can contribute to the preparation of national determined contributions (NDCs) to the global response to climate change and Sustainable Development Goal (SDG) 13. In brief, SDG 13 is to take urgent action to combat climate change and its impacts,⁸ and is one of 17 SDGs adopted by the United Nations as part of its Agenda 2030.⁹ Under SDG 13 there are 5 targets, including to "integrate climate change measures into national policies, strategies and planning" (SDG 13.2), such as NDCs (UN 2017).

A carbon tax is one way of supporting SDG 13, by simultaneously internalizing the cost of climate change driven by greenhouse gas emissions from combustion, and sending a price signal to businesses, households and individuals to change behaviour. How taxes can help achieve the SDGs is an area of growing interest.¹⁰ However, carbon taxes are a politically contentious issue, requiring not only good data to help with policy analyses, but also public acceptance and political leadership (Grubb et al. 2014).

As such, the case presented here consists of multiple elements. The first was the political opportunity and the second was the funding of an environmental accounting program. The third element regards the SEEA, which served as the framework for organizing data. Importantly, data organized by the SEEA could

⁸ See: <https://sustainabledevelopment.un.org/sdg13>

⁹ See: <https://sustainabledevelopment.un.org/sdgs>

¹⁰ See, for example: <http://www.worldbank.org/en/events/2017/06/06/first-global-conference-of-the-platform-for-collaboration-on-tax#1>

be used in existing computable general equilibrium models. The fourth element was the human and institutional network, and the building of connections with the purpose of identifying potential users for the energy accounts. The fifth element regards the use of data by policy agencies to understand the current circumstance, test assumptions, and investigate options. The final element was understanding the political trade-offs and the politics that ultimately meant a carbon tax was not adopted in New Zealand.

After presenting these elements, the paper goes on to discuss policy making styles and the role of a national statistics office in relation to policy agencies and political processes. The paper finishes with a summary and conclusions.

7.2 New Zealand carbon tax case study

Political opportunity

Following the 1999 election, a Labour-led coalition government was formed. The Greens were outside the coalition but were able to secure provisions in successive budgets, including NZ\$ 730,000 for “pilot work on alternative national accounts and business environmental reporting” (Green 2000). This included funding for Statistics New Zealand (SNZ).

Resourcing of environmental accounts

With government funding, SNZ undertook recruitment and formed a team of six to prepare New Zealand’s first environmental accounts. The team had a diversity of backgrounds including economics, environmental science, geography, geology and statistics. These accounts developed included: minerals, energy, water, forest, land use, CO₂ emissions, fish, and environmental protection expenditure. The team had the benefit of being able to focus on environmental accounting full-time, building their capacity with support from experts from National Accounts, literature, international case studies, and successive drafts of the *Handbook of National Accounting: Integrated Environmental and Economic Accounting 2003*, which was being developed by the London Group (UNSD 2017). The time required to find existing data and compile accounts was around two years, which was longer than expected for most accounts.

SEEA energy accounts

New Zealand’s energy flow accounts provided estimates for the flow of energy from the environment into the economy, including geothermal energy, hydro and wind, as well as coal, oil and gas. The accounts then included product flow tables (i.e. supply and use tables) with data on the value of energy flows through the economy along with corresponding physical quantities. Finally, the energy accounts were published with energy-related greenhouse gas emissions (SNZ 2004). The energy flow accounts were based on data from the Ministry of Economic Development’s (MED) Energy Data File (EDF), the Energy Efficiency Conservation Authority’s (EECA) Energy End Use Database (EEUDB), as well as input output tables from Statistics New Zealand’s national accounts (SNZ 2004).

The majority of the work preparing the energy flow accounts was spent unpacking transport energy demand. This involved taking physical energy data for transport available in the energy balance and splitting it between the economic activities (i.e. the industries and sectors defined in the national accounts). Monetary data for fuel purchases were already available but needed to be split between the different fuel types (e.g. petrol, diesel, gas). Once physical energy use data were compiled, it was possible to estimate the energy-related greenhouse gas emissions by economic activity (SNZ 2004).

Connecting with the Treasury

While preparing the energy and greenhouse gas emission accounts, there was a desire within the Environment Statistics team to determine how the accounts could be applied to policy (SNZ 2003).

Given the link between energy-related greenhouse gas emissions and the issue of climate change, the Energy Accounting Lead attended a public consultation by the government team working on climate policy. Following the consultation, contact was made with the Treasury as it was determined they were seeking information similar to what was included in the energy accounts. This contact directly led to the Treasury contact using SNZ's energy accounts. The energy accounts were used in preference to other information sources on the basis that SNZ had greater time and resources available to compile the required data, and there was an expectation that this would improve the quality of the data available for analysis (Pers. Comm. John Creedy 2002).

SNZ had various organisations review the first draft of the energy accounts, given that they were being produced for the first time. The reviewers included the Treasury, who provided feedback that the data were too aggregate to be useful for the analysis they intended to carry out. After discussion within SNZ and the allocation of additional resources to the project, this led to a more detailed breakdown being prepared. The draft energy flow accounts were sent for final review by other government departments¹¹ just prior to Christmas 2003, and after incorporating feedback, were published in 2004 (SNZ 2004).

Treasury analysis

Unknown to the Energy Accounts Lead, the contact at the Treasury was a carbon tax expert who had been recruited for two years while on leave from his academic role at Melbourne University. Being an expert, he attended a carbon tax group meeting and volunteered to undertake an empirical assessment of the potential effects of a carbon tax on New Zealand. SNZ's engagement was welcomed as it reduced the amount of work the Treasury staff member and intern would have to undertake in support of the analysis.

From the energy accounts, the Treasury prepared two Treasury Working Papers. The first was titled "Carbon Taxation, Prices and Household Welfare in New Zealand" (Creedy and Sleeman 2004a). By looking at the use of fossil fuels by industries, inter-industry transactions, and a range of possible carbon taxes, Treasury was able to assess:

- What carbon tax rates would do to consumer prices
- Changes in household expenditure by type of household
- The level of inequality of carbon tax burden (Creedy and Sleeman 2004a)

The second paper was titled "Carbon Dioxide Emissions Reductions in New Zealand: A Minimum Disruption Approach" (Creedy and Sleeman 2004b). In this paper, the Treasury looked at how carbon dioxide emissions may be reduced by changes in the structure of the economy, specifically in relation to final demand; use of fossil fuels by industry; and the structure of inter-industry transactions. Treasury modelled how to reduce carbon dioxide emissions in the least disruptive way possible by assessing the minimum changes to the above components that would achieve necessary greenhouse gas reductions. Treasury constrained their model by limiting the acceptable changes in GDP growth and aggregate employment (Creedy and Sleeman 2004b). Academic papers also resulted from the studies by Treasury (Creedy and Sleeman 2005, 2006).

It is unclear to what extent this work was used to inform carbon tax policy or informed the political carbon tax debate.

¹¹ As these were experimental accounts compiled using existing data it was considered appropriate to share them with other government departments and select reviewers in advance of publication. For established statistical products this would not happen, but rather figures would be embargoed until the time of publication.

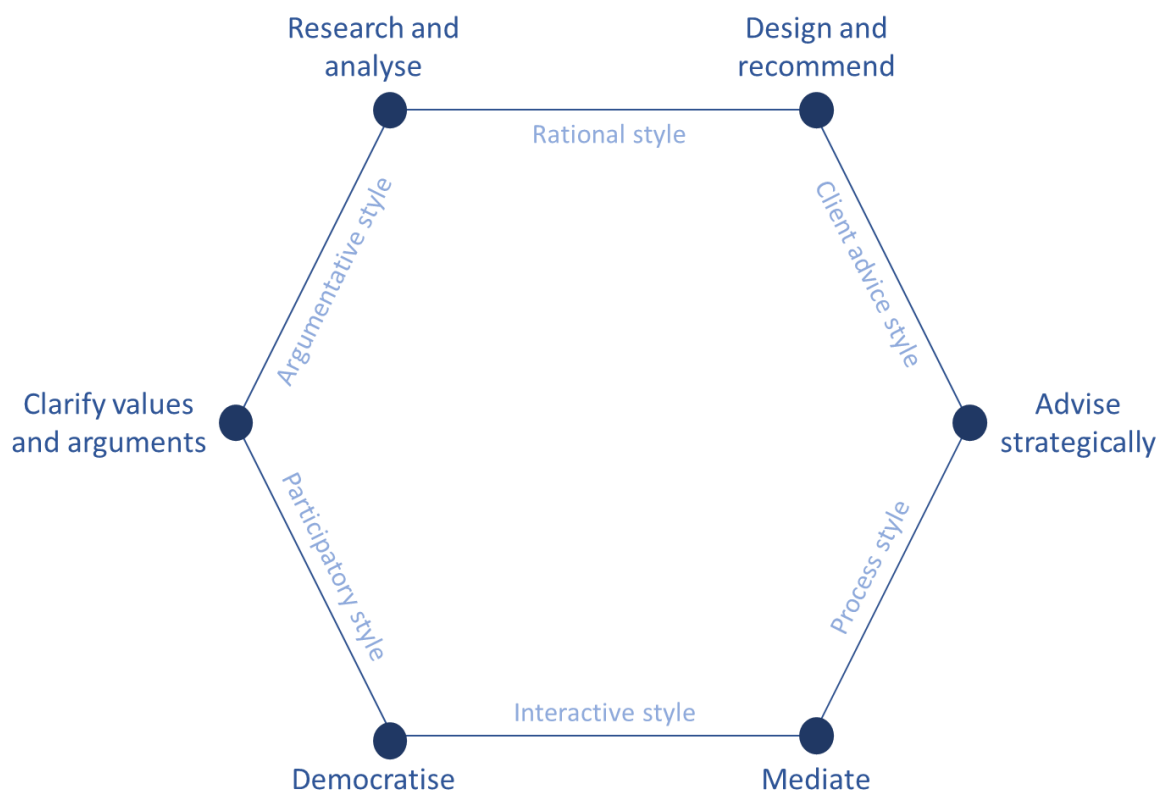
Political Trade-offs

So, what happened? In the national election in 2005, Labour campaigned for a carbon tax but United Future, whose support was required to form a government, had campaigned against the carbon tax. The confidence and supply agreement between Labour and United Future included a review of the carbon tax (Bennet 2005) and the carbon tax was never implemented. Thus, while the New Zealand case study illustrates that the accounts were useful in analysis of issues and the assessment of different policy options, ultimately the decision to implement the tax was a political decision.

7.3 Environmental accounting and policy making styles

In the book titled “Public Policy Analysis: New Developments” edited by Thissen and Walker (2013), six policy making styles were presented using a hexagonal plot (Figure 7.1) (Mayer et al. 2013). The case study from New Zealand demonstrates many of these policy-making styles. In the first instance, mediation between Labour and the Greens created the opportunity for funding of environmental accounting activities at SNZ. Importantly, there was sufficient funding for dedicated staff to be recruited to undertake the complex task of preparing accounts for the first time.

Figure 7.1 Styles of policy making



Source: Mayer et al (2013)

The government undertook public consultations following the participatory style of policy making, serving as an opportunity for the democratization and clarification of arguments by business, civil society and others (MfE 2001). It also facilitated an opportunity for networking and the connection between SNZ and the Treasury, and ultimately the use of energy accounts in the Treasury working papers. The networking by the SNZ Energy Accounting Lead can be considered a case of “policy

entrepreneurship,” or at least “data entrepreneurship,” where an individual seeks to find an application of their data within government.

The actual compilation of energy and emissions accounts followed the rational research-and-analyze mode, following the fundamental principles of official statistics (UNSD 2014) and the norms within SNZ. This also meant that the accounts did not make interpretations of the data or their policy implications, but rather, descriptive commentary. That said, assumptions and choices were made with regard to methods, especially where there were data gaps or alternative data to choose from. The methods and data used were described in the report (see SNZ 2004).

The preparation of Treasury Working Papers followed the rational style involving designing and recommending a policy. In this case, it involved staff at the Treasury taking the best available data and using existing models to look at how a carbon tax could be optimized, and then informing the government and other interested parties (e.g. business and civil society) through working papers.

Like the Energy Accounts Lead, the Treasury contact also acted as a policy entrepreneur, volunteering to undertake the research. However, it is difficult to gauge the influence of the working papers without further analysis, for example on the timing of publication in relation to policy processes, including who read the documents.

In the end, politics and the mediation style of policy making that created the opportunity to compile the energy and emissions accounts also demonstrated that while data and analyses are available, there are other factors in government decision making resulting in trade-offs. Thus, a confidence and supply agreement involving Labour and United Future meant that the carbon tax was never implemented.

7.4 Conclusions

From the New Zealand case study, it is clear that no one thing resulted in the energy and emissions accounts being used as an input to the Treasury working papers on New Zealand’s carbon tax. As such, if environmental accounts are to be applied to policy, many things need to happen. In the New Zealand case, this included having the mandate and adequate resources to compile environmental accounts, engagement with other parts of government, the active pursuit of opportunities to have data used by others, and an interest from the government in a policy (i.e. carbon tax) that could benefit from environment accounts.

It should be noted that energy and related CO₂ emissions accounts and a carbon tax were in the “sweet spot” for the application of environmental accounts to policy questions. Annual accounting periods provide meaningful data, there are no geographic constraints to consider when assessing CO₂ emissions, and the policy being considered (i.e. carbon tax) can readily be assessed using existing models in government. In other cases, seasonality may be very important, national data may have limited analytical value as issues may be geographically constrained (e.g. local in character), potential policy options may not be clear - and even if the options are clear, the models and methods needed may not exist.

The SEEA energy and energy-related greenhouse gas emissions accounts could be a very important framework for organizing information for further analysis in support of NDC preparation and addressing SDG 13. However, given the resources required to prepare environmental accounts, consideration of whether environmental accounts will generate meaningful and analytically useful information should be considered in advance. In some cases, indicators and other types of analyses may be adequate and require less effort to be collected, compiled and analyzed.

An awareness of policy styles may help those preparing environmental accounts to engage with others government agencies and manage expectations. Data entrepreneurship was central to the New Zealand case study, but at the same time, there was an awareness of the need to follow the fundamental principles of official statistics and stick to the rational style of data preparation (i.e. research and analyse). Through interactions with the Treasury, an awareness emerged of the role the Treasury had following the rational design and recommended style of policy making. However, it was only on reflection that the wider issues of mediation, participation, democratization and the clarification of values and arguments emerged as being important to the case study. Mediation not only created the opportunity for developing environmental accounts, but also the trade-off that led to the carbon tax being abandoned following the 2005 election.

In conclusion, in New Zealand environmental accounts provided a framework for organizing data used to analyze the impact of a carbon tax. The production and use of the accounts depended on many things including resources, linking with other government agencies, and finding an alignment of opportunities. Perhaps most importantly, if accounts are to be applied to policy issues, it is useful to take a proactive “data entrepreneur” approach being aware of policy making styles, while at the same time ensuring data quality through the rational style of research and analysis.

7.5 Acknowledgements

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