

## **Greenhouse Gas Emissions Embodied in New Zealand's Trade**

Topic: International trade and environment

Author: Robbie Andrew

Co-Authors: James Lennox, Glen P. Peters

Domestic and international policies for GHG mitigation have focussed on reducing emissions within territorial boundaries, following the 'polluter-pays principle', which underpins many modern environmental policies. However, international trade in goods and services partially decouples activities of production and consumption, which may occur in different countries.

We report on work in progress and preliminary results from a project using multi-regional input-output analysis to quantify the GHG balance of trade for New Zealand. We start with the readily available GTAP database, produce a new IOT and imports matrix for New Zealand, combine and balance the GTAP database with the new IOT for New Zealand and major trading partners, introduce a new global database for non-CO2 emissions, calculate international maritime emissions and air passenger transport emissions using a detailed bottom-up model specific to New Zealand, and project these emissions over 2001–2009.

Estimating the GHGs embodied in New Zealand's imports, exports and final consumption will provide important information that complements that currently available in the Government's National Greenhouse Gas Inventory Report. The methods used to generate historical estimates of these embodied emissions can also be applied to analyse the impacts of different scenarios for future global demand and trade patterns. These estimates will allow the Government to assess the implications of New Zealand's international trade for emissions targets and general and sector-specific accounting rules that may be negotiated for a post- Kyoto regime.