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**The Cost and Trade Impacts of Environmental
Regulations: Effluent Control and the
New Zealand Dairy Sector**

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for the degree
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at Massey University

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Abstract

This thesis investigates the impacts of current water quality regulations on the New Zealand dairy sector. The dairy industry is expanding, with dairy exports constituting 20% of total merchandise trade receipts. In recent years however, concern has grown in New Zealand and worldwide, regarding the negative environmental impact of intensive dairying, in particular the nitrate levels in ground and surface waters. In New Zealand both the protection of the environment, and trade are important for the economy. This research looks at the possible effects of increased on-farm costs on the competitiveness of the New Zealand dairy sector in the international market.

In response to the Resource Management Act 1991, Regional Councils throughout New Zealand have required dairy farmers to operate a land-based disposal system for dairy shed effluent. An estimate is made of the additional cost this imposes on dairy farmers. An applied general equilibrium approach (GTAP) is used to analyse the possible impacts of these additional production costs on New Zealand's dairy export trade. This analysis is conducted under two scenarios, the first being that New Zealand acts unilaterally in imposing water quality regulations. The second scenario assumes that New Zealand's three main dairy export competitors, the EU, Australia and the US also enforce their own water quality regulations and internalise the costs of such regulations.

The cost to the dairy farmer of implementing a land-based effluent disposal system in order to meet water quality regulations is estimated at 2 to 3.2% of total farm costs. In the first scenario, given this increase in costs, the model predicts a loss in international competitiveness for the New Zealand dairy exporting sector. Under the second scenario, the global dairy export price index is predicted to rise by considerably more than the increase in the supply price of New Zealand's processed dairy products. This will mean a realignment of international trading patterns and an expansion of the New Zealand dairy exporting sector, thereby increasing its global market share.

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