



## New product environmental issues and retailer action

Governments have found it increasingly difficult to agree on complex environmental issues such as climate change. This has led to retailers and businesses taking the lead to address and reduce the impact of their activity on the environment and reduce impacts.

Retailers and business now want to stock products that have lower environmental impacts. A changing international policy and business environment, especially within developed countries, has revealed the breadth of sustainability initiatives being considered.

Action by retailers on environmental issues is strong in Europe and growing in North America and Asia. This briefing investigates the latest retail- and business-led initiatives to address environmental issues and explores potential implications for New Zealand exporters. Initiatives include both environmental regulation and voluntary business schemes affecting many products.<sup>1</sup>

### Key Messages

- International retailers are committed to tackling carbon emissions, water conservation and biodiversity damage in supply chains in the aftermath of food miles
- Greater disclosure of information in product supply results in greater scrutiny of environmental credentials by retailers
- Global businesses expect suppliers and value chain partners to help them achieve their goals on reducing environmental and social impacts
- Environmentally and socially responsible businesses are more likely to build long-term relationships with retailers and global food suppliers
- New Zealand exporters must ensure measurement, verification and communication of environmental credentials
- Significant value through savings, innovation and market access can be obtained through measuring and communicating environmental credentials

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<sup>1</sup> Saunders S, Guenther M, Driver T 2010. Sustainability trends in key overseas markets: Market drivers and implications to increase value for New Zealand exports, Research Report No. 319, Lincoln, New Zealand, AERU, Lincoln University.

The wider sustainability agenda includes broad church of varied environmental and social issues including animal welfare, food safety, and traceability sitting alongside physical environmental impacts. This briefing focusses mainly on product issues to highlight how retailers are dealing with emerging issues of importance.

### Moving on from 'food miles'

In the last five years much attention has been focussed globally on the need to address the challenge of climate change. Over this time the issue of 'food miles' has stimulated intense debate among New Zealand's primary sector on how best to respond to climate change-related issues, as discussed in Hatched: The Capacity for Sustainable Development.<sup>2</sup>

In 2006 Landcare Research published a comprehensive briefing on the issue of food miles.<sup>3</sup> A food mile product indicator is a simple concept that shows the total distance food is transported before being sold by a retailer<sup>4</sup>. Avoiding unwanted food miles was seen as an easy way to highlight issues on climate change. However, as early as 2005 the UK government had begun to recognise that the use of food miles was a poor indicator of the environmental credentials of retail products.<sup>5</sup> A balance needs to be found between reducing food transportation emissions and product life-cycle emissions, and this balance needs to be relayed coherently and easily to the consumer.<sup>6</sup>

### The rise of carbon footprints

In the aftermath of the food miles debate, there has been growing international interest in greenhouse gas (GHG) footprinting,<sup>7</sup> and retailers have been driving initiatives to establish the carbon footprint of products. A GHG footprint, often referred to simply as a carbon footprint, determines the total volume of GHG emitted in carbon equivalents across the entire lifecycle of a product or service. Instead of using food miles (transport of products from one country to another) as an indicator of environmental credentials, a carbon footprint is based on the emissions of GHGs, e.g., Carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>),

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<sup>2</sup> Frame B, Gordon R, Mortimer C eds 2010. Hatched: the capacity for sustainable development. Landcare Research ebook available <http://www.landcareresearch.co.nz> (retrieved 1 February 2012).

<sup>3</sup> Stancu C, Smith A 2006. Food miles the international debate and implications for New Zealand exporters, Business & Sustainability Series Briefing Paper 1, Landcare Research. [www.landcareresearch.co.nz](http://www.landcareresearch.co.nz) (retrieved 1 February 2012).

<sup>4</sup> Smith A, Stancu C, McKenzie S 2006. Food Miles – practical steps for New Zealand exporters. Business & Sustainability Series Briefing Paper 3, Landcare Research. [www.landcareresearch.co.nz](http://www.landcareresearch.co.nz) (retrieved 1 February 2012)

<sup>5</sup> Smith A, Watkiss P, Twedde G, McKinnon A, Browne M, Hunt A, Trevelen C, Nash C, Cross S 2005. The validity of food miles as an indicator of sustainable development. Didcot, UK, AEA Technology Environment.

<sup>6</sup> Institute of Grocery Distributors 2008. Food miles: evaluating the impact. [www.igd.com/index.asp?id=1&fid=1&sid=3&tid=42&folid=0&cid=196](http://www.igd.com/index.asp?id=1&fid=1&sid=3&tid=42&folid=0&cid=196) (retrieved 14 February 2012).

<sup>7</sup> Ministry of Agriculture and Greenhouse Gas (GHG) Footprinting Strategy. <http://www.maf.govt.nz/environment-natural-resources/climate-change/greenhouse-gas-footprinting-strategy> (retrieved 15 January 2012).

nitrous oxide (NO<sub>x</sub>), and ozone (O<sub>3</sub>) from the supply of raw materials, cultivation of a crop, processing or manufacturing, distribution, retailing,<sup>8</sup> consumption, and disposal. Including all activities across the supply chain in the analysis is known as studying the product's life cycle.

The reason why sectors or companies invest in carbon footprints varies but is often due to pressure to be seen acting positively on climate change and the need to disclose useful and credible environmental information. In some cases a footprint forms part of a competitive tender process or

preparation for the New Zealand ETS through direct reporting/trading obligations or indirect impacts.

The Ministry of Agriculture and Forestry's Greenhouse Gas Strategy enabled 15 primary sectors, including kiwifruit, beef, lamb, dairy, onions, venison, and timber, to complete an indicative carbon footprint for typical export products. For example, a carbon footprint can be used to determine the volume of carbon emitted by one kilo of kiwifruit grown and packaged in New Zealand, transported to the United Kingdom, and sold and consumed in the month of July in a particular year. Studies also highlighted methods for reducing carbon emissions across the supply chain and significant potential cost savings through efficiency measures introduced to reduce emissions. In other initiatives, firms within the wine sector have addressed carbon emissions through working with the carboNZero programme.

These studies often showed that production or manufacturing was not the most important part of the supply chain in terms of emissions. Efficient cultivation or production systems in New Zealand highlight that other areas of the supply chain, including shipping, distribution or consumer behaviour, e.g., cooking, may play an important role in a footprint. Attempts to reduce the GHG footprint of a product often lie in innovation in operations or in building new relationships in the supply chain to address specific activities.

The transparency offered by a product carbon footprint coupled to the positive reduction of GHG emissions can lead to benefits, including gaining market access and share, and gaining a competitive advantage through being the first supplier to provide a detailed plan to lower carbon emissions. However, it can be suggested that many New Zealand primary sector operators have been timid about promoting their efforts to address carbon and environmental issues, alongside product quality and other competitive benefits.



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<sup>8</sup> Economist 2011. Carbon footprints: following the footprints, [www.economist.com](http://www.economist.com) (retrieved 1 February 2012).

## The retailer agenda

The power and influence of retailers has increased significantly in recent decades, placing the onus firmly on suppliers to prove the environmental credentials of their products before they are stocked. With greater disclosure of information about environmental performance of products and organisations within the supply chain there is greater scrutiny by retailers.

Retailers are strategically positioned to leverage environmental improvement across product supply chains but action to address the environmental impacts of products requires coordination across supply chains. This is especially true in the retail sector where efforts not only address the environmental impact of supermarket stores but also the actions of product suppliers to understand the complexity of environmental issues. Often retailers have the power to act as virtual regulators, setting their own standards to improve the environmental credentials of products. The general approach of retailers is to focus on the product impact followed by disclosure and standard setting for different product category, sectors or services.

It is estimated between 30 and 50% of our average daily carbon footprint comes from the products we buy and the services we use.<sup>9,10</sup> Responses by retailers to environmental issues such as carbon footprinting vary depending on company strategy, customer views, and the retailers' position within the market. If activity by certain retailers is not always obvious that does not always mean environmental issues are unimportant. The information below summarises the activities of influential retailers.

The wider retailer sustainability agenda includes varied environmental and social issues such as animal welfare, food safety and traceability sitting alongside physical environmental impacts. These issues cannot be covered effectively in this briefing but of the activities highlighted below are linked to other initiatives on these issues.

## Walmart

Recognising that their customers want products that are more efficient, last longer, and perform better Walmart announced plans to tackle environmental issues in 2008. Walmart has three key goals to be supplied by 100% renewable energy, to create zero waste and to sell products that sustain people and the environment. The focus is not just on measuring the environmental impacts of products and services but on organisations that supply the retailer and how they verify and communicate their performance.

As a first step towards achieving this aim more than 10,000 global suppliers were sent a brief survey to evaluate their product's environmental credentials. The survey, involving Walmart's top-tier suppliers, represented a key step toward enhancing transparency of the companies supply chains in terms of GHG emissions, waste generation, water use, use of certification schemes, and purchasing guidelines. The aim of the survey was to build an index of sustainable products by distinguishing 'greener' products.

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<sup>9</sup> Tesco Greener living, [www.tesco.com/greenerliving](http://www.tesco.com/greenerliving) (retrieved 15 February 2012).

<sup>10</sup> The Sustainability Consortium, [www.sustainabilityconsortium.org](http://www.sustainabilityconsortium.org) (retrieved 1 February 2012).

Walmart's actions are heavily linked to the work of The Sustainability Consortium (see below). The Sustainability Consortium's mission is to build a global database of information on products – assessing environmental impacts from raw materials to disposal (commonly known as across the life cycle). The completion of the database forms a second step (after study of the survey responses) in the process of understanding the environmental impact of products sold by the retailer.

Ultimately, the use of the sustainability index will lead Walmart towards improving the performance of suppliers. Information about the environmental credentials of products will be provided to customers in a simple, easy-to-understand manner, with the aim of helping them save money and reduce environmental impacts. The process is called 'choice editing'.

Walmart's global reach means that initiatives are being developed in a number of established and emerging markets outside the United States. Walmart's focus is clearly on generating cost savings that can be passed on to consumers. Walmart's UK subsidiary ASDA saved over £70m in 2010 alone through reducing waste and energy usage in its operations, and delivered four years ahead of schedule on its promise to reduce absolute carbon emissions throughout its operations by 10%.<sup>11</sup> More recently the company has extended its work related to emerging markets in Asia by developing energy efficiency projects for their stores in China.<sup>12</sup>

## Tesco

In 2008 Tesco, the UK's largest retailer, became the first international supermarket to commit to displaying product labels showing carbon emissions.<sup>13</sup> The company believes its supply chain produces ten times the emissions of its direct operations (heating and lighting stores and offices, and so forth), and that consumer emissions may be ten times as big again.<sup>14</sup> Carbon labels are intended to let shoppers identify products with the smallest carbon footprints, just as other labels already indicate fair-trade or organic products, e.g., coffee and milk. The carbon label is backed by the UK's Carbon Trust, a not-for-profit organisation with the mission to accelerate the move to a low carbon economy. The Carbon Trust provides specialist support to business and the public sector to cut carbon emissions, save energy and commercialise low carbon technologies.<sup>15</sup>

Tesco's labels show how many grams of equivalent carbon dioxide were emitted as a result of growing, manufacturing, processing, transporting, and storing a product before it is sold.



<sup>11</sup> Walmart Sustainability, [walmartstores.com/Sustainability](http://walmartstores.com/Sustainability) (retrieved 5 February 2012).

<sup>12</sup> Tesco Greener living, [www.tesco.com/greenerliving](http://www.tesco.com/greenerliving) (retrieved 15 February 2012).

<sup>13</sup> Guardian Newspaper Online, Tesco drops carbon-label pledge, [www.guardian.co.uk/environment](http://www.guardian.co.uk/environment) (retrieved 30 January 2012).

<sup>14</sup> The Economist 2011. Carbon footprints: following the footprints, [www.economist.com](http://www.economist.com) (retrieved 1 February 2012).

<sup>15</sup> The Carbon Trust, [www.carbontrust.co.uk](http://www.carbontrust.co.uk) (retrieved 30 January 2012).

In some cases, the labels also consider the impact of preparing or using a product and then disposing of any waste.

Tesco added carbon labels to over 100 of its own brand products, including pasta, milk, orange juice, and toilet paper. For some products Tesco tells consumers how the carbon footprint compares with other similar products, so the product with the smallest carbon footprint can be established. A number of labels give tips about how to reduce a product's footprint when it is cooked, used or disposed of.

However, in January 2012 Tesco announced that it planned to phase out the use of carbon labels, blaming the excessive effort needed to support the scheme and the fact other supermarkets did not follow their lead. At the time of writing, Tesco says it is still committed to providing carbon footprint data for customers but has not said how it will do so once the label is phased out.

### Marks & Spencer

In 2007 the UK retailer Marks and Spencer launched its Plan A, setting 100 commitments to achieve in 5 years on sustainability issues.<sup>16</sup> The commitments address not just environmental issues such as GHG emissions but also a raft of social issues that include ethical business practices, food safety, animal welfare, and community development. In 2010 the original 100 commitments of Plan A were extended to 180 to be achieved by 2015, with the ultimate goal of becoming the world's most sustainable major retailer.

To date, investment in Plan A has totalled £200m but the retailer quickly saw a return as Plan A was cost neutral after 1 year and in year 2 produced £20m profit from cost savings. In their 2010 sustainability report Marks and Spencer state the company has achieved 95 of the original 100 Plan A commitments set in 2007, resulting in a reduced environmental footprint, increased efficiencies, greater innovation, and additional business.<sup>17</sup>

In the 2010 financial year, Plan A activities contributed a net benefit of over £70m, up from £50m in 2009. The money from cost savings produced in the plan is invested back into the business. Financial benefits were achieved using a range of measures to integrate environmental issues into everyday business. This includes ensuring all executive directors and members of the management committee have Plan A targets that contribute directly to their personal performance bonus.

Marks and Spencer have commissioned climate change risk assessments of their stores and supply chains to reduce business risk. The aim of the assessment is to work with suppliers, farmers, and growers to develop carbon and energy measurements that achieve further improvements. Notably, Marks and Spencer also held a series of high-profile Plan A supplier conferences to encourage cooperation to tackle important issues across supply chains. They has also launched a range of low carbon projects, covering everything from chocolate,

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<sup>16</sup> Marks and Spencer Plan A, <http://plana.marksandspencer.com> (retrieved 30 January 2012).

<sup>17</sup> Marks & Spencer UK, How we do business, <http://plana.marksandspencer.com> (retrieved 30 January 2012).

alternatives to bottled water and healthy dairy, to on-farm composting and anaerobic digestion, which can generate energy from farm waste.

The results of Plan A are actively promoted through a set of company values related to the products sold by the retailer. These values include Fairtrade, organic, free range, sustainable wood and fish, energy efficiency, supplier excellence, and use of recycled materials. Importantly, these values are relatively straightforward for customers to understand during purchasing decisions and allow the retailer to create a strong story or narrative about managing environmental credentials from supply chains. Products are increasingly choice edited on behalf of the customer to match these values.

Plan A is an attempt to apply high quality and consistent product and corporate standards across everything Marks and Spencer sells. The aims of Plan A are not necessarily achieved through developing new standards but application of existing standards rigorously. The standards chosen often fit with the need to communicate important outcomes relevant to consumer choices. For example, products often carry labels certified by organisations that add credibility to the disclosure of information and satisfy performance criteria set out by certification schemes, e.g., Rain Forest Alliance, Fairtrade labels, Carbon Trust, and Forestry Stewardship Council.

### Sainsbury's

Sainsbury's current sustainability plan follows the pattern of investment in major long-term green strategies set by other retailers. Sainsbury's is the world's largest Fairtrade retailer – accounting for £276m worth of sales last year – and it is also the largest retailer of Marine Stewardship Council certified fish and Royal Society for the Prevention of Cruelty to Animals (RSPCA) Freedom Food-certified products.

The retailer plans a \$2.57bn investment over the next eight years on environmental and other sustainability-related issues. The strategy involves 20 high-level commitments, e.g., all fish will be provided by sustainable sources, increasing sales of fairly traded products to £1bn. Suppliers are expected to become leaders in meeting or exceeding Sainsbury's standards for environmental and social performance.

By 2020, Sainsbury's plans to have worked with their own brand suppliers to reduce carbon emissions across all of their own brand products by 50%. Sainsbury's intend to develop a carbon footprint tool for farmers that has the potential to reduce their energy costs and carbon footprint by 10% annually.<sup>18</sup>

### Australian and Asian retailers

Australian retailer Coles is focussed on issues related to sorting out their 'own backyard' through their own brand products. Actions on product traceability on ethical sourcing have

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<sup>18</sup> Sainsbury's 20 by 20 Plan, [www.j-sainsbury.co.uk/responsibility/20-by-20-commitments](http://www.j-sainsbury.co.uk/responsibility/20-by-20-commitments) (retrieved 14 February 2012).

formed a large part of the Coles activity. Working with the Royal Society for the Prevention of Cruelty to Animals on sourcing meat products and the WWF on protecting seafood/fish species Coles has started several supply chain initiatives. The retailer's quality assurance team is responsible for working with suppliers and auditing supply chains and reporting performance. Any increases in production due to improved environmental performance are not directly passed on to consumers.

Coles has an extensive own-brand range that has influenced their approach to food miles issues. Around 96% of Cole's fresh produce, including fruit, vegetables, and bakery products, are sourced from within Australia and many products are supplied from local source near to the supermarket stores.

To date, carbon and water issues have not been a major priority but in the medium term Coles is investigating the setting up of several projects to establish the best way to manage carbon emissions in the supply chain. Scoping of the projects includes learning lessons from the global retail market on experiences with carbon labelling and footprints; however, widespread labelling of Coles products is not anticipated at the moment.

Woolworths Limited's long-term goal is to be recognised as the leader in sustainable retailing in the Australian retailing sector. Commitments currently include a 40% reduction in carbon emissions on projected growth levels by 2015, maintaining 2006 levels and at least 200 million litres of water to be saved each year by the retailer.<sup>19</sup> Woolworths has partnered with Landcare Australia since 2007 to support the Woolworths Sustainable Agriculture programme, which has delivered funding to over 150 projects around Australia.

In 2010, Woolworths announced a new program to protect Australia's future food supply. Within the Woolworths future food supply programme, it is intended that the majority of projects will be with Woolworths' suppliers to encourage their adoption of farming practices that reduce GHG emissions and water use, improve nutrient management, and also their adoption of sustainable fishing management. The projects will focus on a whole of supply chain life cycle analysis for greenhouse gases for key vegetable crops, and the development of a water footprinting tool for Woolworths' fresh food suppliers.<sup>20</sup> For example, a whole of supply chain life cycle assessment for greenhouse gases for the key vegetable crops has been completed to understand the emissions associated with the different stages of vegetable supply. As carrots, potatoes, and tomatoes are Woolworths' highest volume fresh produce lines they were chosen for the study. A second project focuses on water use in the vegetable industry, with a water footprinting tool being developed for use by Woolworths' suppliers as an add-on to carbon footprinting tools being developed. Fresh food suppliers will be able to use the calculator to monitor water use against industry benchmarks.<sup>21</sup>

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<sup>19</sup> Woolworths Limited 2007. Doing the right thing, [www.woolworths.com.au](http://www.woolworths.com.au) (retrieved 24 February 2012).

<sup>20</sup> Landcare Australia, Woolworth's fresh food future program, [landcareonline.com.au/group/sustainable-farming/woolworths-sustainable-farming-program](http://landcareonline.com.au/group/sustainable-farming/woolworths-sustainable-farming-program) (retrieved 23 February 2012).

<sup>21</sup> Landcare Australia 2011. Woolworths focuses on food future. Landcare in focus, <http://www.landcareonline.com.au/wp-content/uploads/2011/05/Landcare-in-Focus-May-2011-small.pdf> (retrieved 23 February 2012).



In Japan, the Ministry of Economy, Trade and Industry (METI) launched a calculation and labelling programme in 2008 that has signed up more than 300 retailers and manufacturers.<sup>22</sup> As part of this scheme METI established product-category rules (PCRs) for 53 products. These are rules and methods to assess the environmental impact of a specific product or service, and have been developed to ensure consistency in methodology, as standards are often too broad and open to individual interpretation. The rules are not mandatory but are increasingly internationally agreed and beginning to use harmonised methodologies. PCRs are used to generate Environmental Product Declarations (EPDs) that can be used to communicate the environmental credentials of products and services to stakeholder, e.g., retailers. Using a PCR comparison of product carbon footprints is only possible if the footprint has been quantified in accordance with the same PCR both for business-to-business and for business-to-consumer communication. The use of PCRs and EPDs by governments and companies is gaining momentum in Sweden, Germany, Japan, South Korea, and Taiwan.

South Korea's Environment Ministry has introduced a "Cool label", now sported by over 220 products, including furniture, rice, and consumer electronics. In Thailand the government is piloting labels on 65 products from T-shirts to ceramic tiles, and is developing product-category rules for rice, textiles, and chicken. Other labels have been launched in the United States, Canada, Switzerland, and Sweden.

### What are other businesses doing?

In recent years the retailers' influence on the environment has been matched by other businesses working on environmental issues. As a leading multi-national, consumer products company Unilever has invested heavily in Life Cycle Assessments (LCA) studies for the last decade and the results have been used in the design of products and strategic decision making.

Many of Unilever's large, international customers take a strong stance on environmental issues, and have set ambitious targets in areas such as energy use, GHG emissions, and waste generation. The Unilever Sustainable Living Plan acknowledges consumers around the world want reassurance that products are ethically sourced and protect the earth's natural resources. By 2020 the company has committed to decoupling growth (while still growing the business) from environmental impact, achieving absolute reductions across the product life cycle.

The goal is to halve the environmental footprint of the making and use of their products. Sourcing will be restructured with the aim of having 100% of agricultural raw materials sustainably provided.<sup>23</sup>

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<sup>22</sup> The Economist 2011. Carbon footprints: following the footprints, [www.economist.com](http://www.economist.com) (retrieved 1 February 2012).

<sup>23</sup> Sustainable agricultural sourcing: growing for the future, [www.youtube.com/watch?v=ozPfPm5ZBC4](http://www.youtube.com/watch?v=ozPfPm5ZBC4) (retrieved 14 February 2012).  
[www.unilever.com/sustainability/environment/agriculture](http://www.unilever.com/sustainability/environment/agriculture) (retrieved 30 January 2012).

Unilever recently established a baseline for its global operations to understand the GHG emissions by product category, life cycle phase across the supply chain, and type of business. The baseline was invaluable in getting buy-in from senior business leaders and the development of targets for the management of GHG emissions.

The baseline results showed that less than 5% of product-related GHG emissions were caused by Unilever's own operations. Unilever's website notes that agricultural and chemical raw material can provide GHG emissions that are up to 60 times greater than Unilever's own operations. Work is in progress to understand the GHG emissions from key crops and agriculture systems important for the company, such as the production of palm oil. While action will be taken to reduce GHG emissions from its own manufacturing, the largest reduction opportunities exist across the value chain<sup>24</sup> by working with suppliers and influencing customer behaviour. The value chain categorises the value-adding activities of an organisation or industry across the supply chain. The intention is clear that businesses including Unilever expect their suppliers and value chain to help them achieve their goals on reducing environmental impacts through their operations and products.



Unilever is just one of many multinationals beginning to focus on environmental issues. Others include Coca-Cola's work (involving Unilever) on improving supply chain performance on GHG emissions<sup>25</sup> and PepsiCo's use of the UK Carbon Trust label for products including Walkers Crisps.<sup>26</sup>

### Value of addressing retailer trends

One of the major difficulties for export suppliers of the supermarkets is that consumers have diverse attitudes to environmental issues and it is not always clear what is required to meet consumer demand.

Part of Tesco's decision to phase out carbon labelling may have been due to a lack of consumer recognition of the label. Evidence in the UK suggests that current recognition levels among consumers of the carbon label are low compared with labels for fair-trade and

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<sup>24</sup> Unger N, King H, Calvert S. 2011. How to measure and manage the life cycle greenhouse gas impact of a global multinational company. Towards Life Cycle Sustainability Management, Dordrecht, Netherlands, Springer Science Business Media B.V.

<sup>25</sup> Unilever PLC and The Coca-Cola Company 2009. Moving fast to a cleaner climate: how consumer goods can tackle climate change. London, Futerra Sustainability Communications.

<sup>26</sup> Walkers Carbon Savings, [www.walkerscarbonfootprint.co.uk/walkers\\_carbon\\_trust.html](http://www.walkerscarbonfootprint.co.uk/walkers_carbon_trust.html) (retrieved 14 February 2012).

organic produce. A survey carried out in 2010 by Which?,<sup>27</sup> a UK consumer group, found that one fifth of shoppers recognised the carbon footprint label, compared with recognition rates of 82% for fair-trade and 54% for organic labels. However, this may be due to the fact that fair-trade and organic labelling has a much longer history than carbon labelling in the UK.

That survey and other similar evidence often lead suppliers to question the benefits of addressing environmental market trends. In cases where market access is at stake, the benefit of tackling issues such as carbon footprinting is obvious. The increasing use of choice editing by retailers also increases the need to tackle environmental issues and show reductions in the environmental footprint of products.

Recent research in Australia showed that labelling might have a greater impact if it was combined with low pricing.<sup>28</sup> Thirty-seven products, including milk, spreadable butter, canned tomatoes, bottled water, and non-perishable pet foods, were labelled with their carbon footprint (up to the point of sale) in a convenience grocery store. The products were labelled as having either higher than average, below average or average carbon emissions.

Over the 8-week trial period sales of products labelled as having higher than average carbon emissions decreased from 32 to 26%, while the share of sales of below average products increased from 53 to 57%. If a product with below average emissions was also low priced, sales increased by 20%.

For many organisations it is often not the carbon footprint numbers themselves that matter but the process needed to create them. In a report issued in 2009 by the Tyndall Centre for Climate Change Research at the University of Manchester, the main benefits of carbon labelling and footprinting activities are seen to be incurred not via communication of emissions values to consumers, but upstream via manufacturers and producers looking for additional ways to reduce emissions.<sup>29</sup>

In the short-to-medium term the value of addressing carbon footprinting is often in the ability to identify and exploit financial savings, e.g., through reducing energy or optimising fertiliser use rather than producing a label to influence consumer choice.

For example, ZESPRI International calculated that research into addressing their carbon footprint would save the New Zealand kiwifruit industry \$17m a year through new production efficiencies.<sup>30</sup> Development of information technology systems is underway at ZESPRI International to record and monitor changes in the carbon/greenhouse gas footprint of our products. There is also on-going research to identify and prioritise initiatives to reduce emissions across the product life cycle.

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<sup>27</sup> The Economist 2011. Carbon footprints: following the footprints, [www.economist.com](http://www.economist.com) (retrieved 1 February 2012).

<sup>28</sup> Vanclay JK, Shortiss J, Aulsebrook S, et al. 2011. Customer response to carbon labelling of groceries. *Journal of Consumer Policy* 34(1): 153–160.

<sup>29</sup> Upham P, Bleda M 2009. Carbon labelling: public perceptions of the debate. Manchester, UK, Tyndall Centre, The Sustainable Consumption Institute and The University of Manchester.

<sup>30</sup> Landcare Research 2009. Annual report, [www.landcareresearch.co.nz/sustainability/sustainability\\_details.asp?Sustainability\\_ID=103](http://www.landcareresearch.co.nz/sustainability/sustainability_details.asp?Sustainability_ID=103) and [www.zespri.com/sustainability-home/managing-carbon.html](http://www.zespri.com/sustainability-home/managing-carbon.html) (retrieved 30 January 2012).

For other sectors, the studies have allowed more equal assessment for the measurement and comparison of footprints, e.g., in the meat and dairy sector, where the method used for the New Zealand sector study has contributed significantly to the development of international methods for carbon footprinting. Alternatively, carbon footprint studies have been used to challenge the validity of food miles. The carbon footprint of pipfruit highlighted the significance of seasonality by showing that emissions can be lower for exported fresh New Zealand fruit than for refrigerated own market grown fruit stored for long periods.

A longer term strategy is to build a story surrounding work on reduction options and repositioning the product in the market place to show environmental responsibility, e.g., through the use of case studies on how and why reductions were achieved. The benefits of the long-term approach are realised through growing market share and realising new opportunities.

### Footprinting standards

The rapid growth of carbon footprinting has produced a number of different methods that can be used for providing data on products developed. A World Bank study has identified 16 different carbon footprinting methods in use across the globe.<sup>31</sup> As retailers, companies, governments, and other organisations have developed their own methods to support their differing needs.

There is a danger that a confused picture is presented to consumers about the carbon footprint of a particular product simply because of the differing methods that have been used to calculate emissions. Several of the more prominent methods developed to date are highlighted below.

Since its publication in 2008 the British Standards Institute's Publicly Available Standard (PAS) 2050 has been widely used internationally to understand product carbon footprints. For example, the PAS 2050 has been used to guide the sector carbon footprints completed as part of the MAF GHG strategy work, e.g., for kiwifruit, pipfruit, and berryfruit. The PAS 2050 has been applied both within New Zealand and internationally to other primary sector products. The research in New Zealand's primary sectors meant that the government has been able to exercise a high level of influence of the revision of the PAS 2050 and the ISO carbon footprinting standard.

Attempting to bring together the different methods used for environmental footprinting work, the International Standards Organisation (ISO) has begun the process of developing an international product carbon footprinting standard. The standard is expected to be published later this year and will provide guidance relevant to many New Zealand exporters wishing to explain and verify the carbon footprint of their products. Work completed as part of the MAF GHG strategy has played an important role influencing the New Zealand government's negotiations in the development of the ISO standard.

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<sup>31</sup> Brenton P, Edwards-Jones G, Jensen M.F. (2010). Carbon Footprints and food systems: do current accounting methodologies disadvantage developing countries? Washington, USA, World Bank.

Alongside the ISO product carbon footprinting standard the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) have published the Greenhouse Gas Protocol Product Life Cycle Accounting and Reporting Standard. The WRI/WBCSD standard can also be used for guidance to identify life cycle emissions of a product and focuses efforts on the greatest GHG reduction opportunities, e.g., GHG associated with the full life cycle of products including raw materials, manufacturing, transportation, storage, use, and disposal.

### Emerging and latent issues

While a carbon footprint can be a good indicator of the overall environmental impact for many product types, it can mean other important environmental impacts associated with some products are missed. For some products, carbon emissions may not be the most important issue of concern. Moreover, a focus on the carbon footprint may produce ‘impact shifting’ of environmental problems as the trade-offs between different types of impact are not factored into decisions on the best improvement options. For example, a product may be changed in order to reduce carbon emissions of a crop but this may have knock-on effects for other environmental issues such as water use, e.g., where intensive glasshouse or poly tunnels are used instead of extensive farming. A survey by the Institute of Grocery Distributors, a leading group in the UK food and beverage sector, highlighted concern among UK consumers over a number of environmental issues, including GHG emissions, water footprint, biodiversity, excessive packaging, and waste.<sup>32</sup>

### Water

Water is critical for human life, ecosystems and as a major process or product input for many industries, including the primary sector. On average agricultural activity is estimated to constitute 80% of the freshwater consumption associated with food products. New Zealand’s resources of freshwater are finite, and inefficient use will limit the wealth that can be created from this resource.

New Zealand is a major exporter of virtual water – water tied up in the production of agricultural products. International standards for the measurement of freshwater consumption by products are being developed, and New Zealand’s agriculture and businesses will increasingly need to show that their use of water is efficient and addresses environmental and social trade-offs.<sup>33</sup>

Freshwater consumption in the growth of food products is fast emerging as a major issue for global retailers such as Walmart, Marks and Spencer, and Unilever, in a similar fashion to carbon footprints.

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<sup>32</sup> Institute of Grocery Distributors 2011. Environmental sustainability – how to engage shoppers, <http://shoppervista.igd.com/Hub.aspx?id=32&tid=4&rptid=180> (retrieved 30 January 2012).

<sup>33</sup> Clothier B, Collins D, Heiler T, Jenkins B, Mowat A, Pyke N, Saunders C, Thomas J 2009. Virtual water: emerging issues. Wellington, NZ, The Royal Society of New Zealand, [www.royalsociety.org.nz/2009/09/11/virtual-water-paper](http://www.royalsociety.org.nz/2009/09/11/virtual-water-paper) (retrieved 30 January 2012).

Some organisations are now conducting water footprints to establish where their businesses are vulnerable. Marks and Spencer is currently working on water footprints for strawberries, tomatoes, lettuce, potatoes, and roses, and this work, like many of the water footprints completed so far, is based on a method developed by the not-for-profit organisation, the Water Footprint Network.<sup>34</sup> Sainsbury's has committed to putting in place robust water stewardship measures by 2020, and schemes for water stewardship are already in place at Sainsbury's Kenyan suppliers, while partnerships with the World Wildlife Fund are underway to assess global water risks.

The Carbon Disclosure Project (CDP) has been successful in compelling companies to assess the risks posed by carbon emissions to their organisations and develop strategies, set targets, and reduce emissions. Now the CDP has turned its attention to business water risks and for the last two years has published results on their business Water Disclosure Project.

Selected companies from the FTSE Global Equity Index Series (Global 500), from the Australian Securities Exchange (Australia 100), and from the Johannesburg Stock Exchange (South Africa 100) were invited to respond to the latest annual CDP Water Disclosure survey.<sup>35</sup>

Fifty-nine percent (113) of respondents report exposure to water-related risk and over one third of respondents have already suffered recent water-related business impacts, with associated financial costs as high as US\$200 million. Sixty-four percent of all risks in direct operations and 66% in the supply chain are reported to have the potential to impact on business either now or within 5 years.<sup>36</sup>



Almost two-thirds of companies (63% or 119 respondents) have identified water-related opportunities and most opportunities are reported as near-term. Opportunities include cost reductions associated with increased water efficiency, revenue from new water-related products or services, and improved brand value.

Meanwhile, the Water Disclosure Project shows water issues are important for Australian companies, with 50% (11) of respondents in the Australia 100 experiencing detrimental

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<sup>34</sup> The Water Footprint Network, [www.waterfootprint.org](http://www.waterfootprint.org) (retrieved 14 February 2012).

<sup>35</sup> <https://www.cdproject.net/CDPResults/CDP-Water-Disclosure-Global-Report-2011.pdf>

<sup>36</sup> Murky Waters [http://www.edf.org/documents/490\\_AQUA.pdf](http://www.edf.org/documents/490_AQUA.pdf), CERES, Water Futures ([http://www.sabmiller.com/files/reports/water\\_future\\_report.pdf](http://www.sabmiller.com/files/reports/water_future_report.pdf)), SAB Miller (retrieved 14 February 2012).

water-related business impacts in the past 5 years. A lower percentage of respondents in the Australia 100 report having a water policy, strategy or plan than in the FTSE Global 500, but the number of companies reporting water accounting data in Australia suggest that companies are taking steps to improve their management of water issues.

To manage freshwater consumption issues successfully it is important to realise the fundamental differences between carbon and water. While the environmental impact of emitting a tonne of carbon is the same everywhere on the planet, geography and time are critical aspects of freshwater availability, consumption, and management. Water impacts are local and water strategies across value chains are actually implemented within every watershed. Water has a strong social and cultural dimension. Many people believe in a "human right to water", which makes pricing this resource harder than putting a price on carbon. Finally, water is desired, beneficial, and necessary – unlike carbon emissions, which are viewed often as an unwanted by-product of supply chain operations.<sup>37</sup>

Another important factor is the market driver for addressing water issues. In Europe and the USA water conservation tends to be a major driver for water footprints. In emerging markets such as China water quality and the use of secure unpolluted sources is more likely to be the main driver. For many New Zealand sectors, the main concern may be that of water quality rather than conservation. As New Zealand has a history of rapid land change, this has led to an increase of nitrates discharged, and this has a potential to reduce the potency of New Zealand's "clean, green" image in sensitive markets.<sup>38</sup>

As with carbon emissions, the response of individual export sectors to water issues will depend on the different priorities within the market. Water footprinting and other methods, including ecosystems services assessments that value freshwater supplies to an organisation, have started to be applied within the New Zealand research community to kiwifruit, red meat, and merino wool. The research suggests that New Zealand export products may have a competitive advantage in regard to water issues, e.g., through the use of rain-fed agricultural systems.

The findings show that new challenges are posed by the communication of results and the adoption of appropriate freshwater management regimes once the findings are established.

## **Biodiversity**

There is little doubt halting global rates of biodiversity loss will prove an important challenge for the 21st Century. Biodiversity is to a certain extent a latent environmental issue that is only expected to become important after carbon and freshwater issues. Biodiversity has been highlighted by New Zealand Trade and Enterprise as an issue of priority for several of the multi-national food companies, including Unilever and Nestle. Many countries have

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<sup>37</sup> Winston A, Sarni W 2011. Is water the next carbon? The Harvard Business Review, January edn. <http://blogs.hbr.org/winston/2011/01/is-water-the-next-carbon.html> (retrieved 30 January 2012).

<sup>38</sup> AERU, Lincoln University Research News, [www.lincoln.ac.nz/PageFiles/1438/AERU%20Research%20News%20March%202011.pdf](http://www.lincoln.ac.nz/PageFiles/1438/AERU%20Research%20News%20March%202011.pdf) (retrieved 14 February 2012).

policies protecting biodiversity and wildlife on farms, reflecting the multi-functionality of land use in some countries. As New Zealand has a large percentage of protected conservation areas, it has not had the same influence over domestic policy measures.<sup>39</sup> Due to the close links of agricultural activity to biodiversity issues, the push toward measuring and understanding the effect of different primary sector activities has become more prominent in recent years. Biodiversity issues are now being considered for access to premium segments on international markets.

In 2011, the French Ministry of Ecology and Sustainable Development introduced a voluntary environmental labelling scheme that is currently being tested. It involves almost 170 companies, including many of the leading retailers, and uses an array of formats to display information on products. The French Parliament will ultimately decide if the scheme becomes mandatory.

The limit of a carbon footprint as an indicator to provide solutions on wider environmental issues (i.e. a product with a low footprint is not necessarily the most sustainable) has increasingly led to a multi-criteria approach. A product's carbon, water, and biodiversity footprint can be considered in the labelling scheme. For example, French retailer Casino intends to develop an environmental indicator, inspired by the French nutritional indicator (recommended daily intake), comparing the impact on the environment of each food product vis-à-vis the average impact of a French daily food basket. Casino intends to incorporate data progressively into the indicator as it becomes widely available and to express a score for each product as a single percentage.<sup>40</sup>

French frozen food retailer Picard, has provided labels for 75 products, including three New Zealand lamb products – leg, rack, and shanks.<sup>41</sup> The New Zealand lamb is assessed to have the highest impact across all three criteria. Picard's biodiversity impact indicator is based on occupancy of agricultural land (m<sup>2</sup> x years) using the concept that crops and livestock require the occupation of an area of agricultural land over several years at the expense of land areas available for biological diversity (plant and animal species).

Picard accepts biodiversity is a complex concept that is difficult to translate into a single environmental indicator, and also notes that the current indicator masks a number of good agricultural practices involved in the preservation of biodiversity. For example, low use of fertilisers and pesticides are not taken into account. The advantages of organic certified products are also not valued by Picard's indicator but with the support of the Ministry of Ecology and Sustainable Development, the development of the indicator is viewed as an opportunity to refine product biodiversity assessment methods. Biodiversity indicators for products are also being developed by the Sustainability Consortium (see below).

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<sup>39</sup> AERU, Lincoln University Research News, [www.lincoln.ac.nz/PageFiles/1438/AERU%20Research%20News%20March%202011.pdf](http://www.lincoln.ac.nz/PageFiles/1438/AERU%20Research%20News%20March%202011.pdf) (retrieved 14 February 2012).

<sup>40</sup> New Zealand Trade and Enterprise: Sustainability Market Intelligence Quarterly Report, November 2011, [www.nzte.govt.nz/explore-export-markets/market-research-by-industry/Food-and-beverage/Documents/Sust%20MI%20NOV%202011%20France.pdf](http://www.nzte.govt.nz/explore-export-markets/market-research-by-industry/Food-and-beverage/Documents/Sust%20MI%20NOV%202011%20France.pdf) (retrieved 30 January 2012).

<sup>41</sup> Picard, Comprendre l'affichage environnemental, [www.picard.fr](http://www.picard.fr) (retrieved 26 January 2012).



Currently, there is no widely accepted method to assess biodiversity impacts related to consumer products, and investigation of different methods at Landcare Research suggests the while state-of-the-art methods can be successfully applied they have a number of important limitations.<sup>42</sup> For example, recognition of diversity or diversity within species (genetic indicators) is not usually incorporated into assessments, meaning different varieties of the same crop cannot be compared effectively. Most current discussion of biodiversity issues also excludes the potential impacts of fishing and shipping. Another important issue that will need careful consideration is the potential inclusion of positive environmental impacts, e.g., when degraded land is converted into indigenous forest. Positive impacts can lead to potential offsets for biodiversity impacts. The Department of Conservation (DOC) is currently managing a programme funded by the Cross Departmental Research Pool (CDRP) that investigates the feasibility of biodiversity offsetting in New Zealand.<sup>43</sup>

However, perverse effects may also be possible in the provision biodiversity offsets. Problems have been experienced with insufficient land being set aside for offsets, how to establish equivalence between species lost and species set aside, time needed for offset to mature, and compliance within offsetting schemes.<sup>44</sup>

### **The Sustainability Consortium**

The Sustainability Consortium is an organisation supported by a diverse set of global participants working to provide sustainable products, services, and consumption patterns.<sup>45</sup> Through multi-stakeholder collaboration, their mission is to design and implement credible, transparent, and scalable science-based measurement and reporting systems accessible for all producers, retailers, and users of consumer products.

This is just one example of partnership between business, not-for-profit organisations, and research organisations to tackle environmental issues of concern. High profile members of the consortium include Walmart, Tesco, Coca-Cola, Unilever, PepsiCo, and Kellogg; currently over 41 top-level household name members support the work of the consortium. Membership includes suppliers of products, manufacturers, service providers, retailers, and distributors.

The Sustainability Consortium focuses on scientific research and the development of standards and IT tools through a collaborative process, to enhance the ability to understand and address the environmental, social, and economic implications of product development, use, and disposal. A central pillar of the work of the Consortium is to adopt a life cycle approach to developing solutions to improve the environmental credentials of products.

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<sup>42</sup> Coelho C, 2011. Biodiversity and Life Cycle Assessment. Unpublished Landcare Research Capability Report.

<sup>43</sup> Department of Conservation 2011, Biodiversity Offsets Programme Update, September edn, [www.sustainablebusinessnz.org.nz/news-and-info/news/latest/biodiversity-offsetting-programme-update](http://www.sustainablebusinessnz.org.nz/news-and-info/news/latest/biodiversity-offsetting-programme-update) (retrieved 30 January 2012).

<sup>44</sup> Gibbons P, Lindenmayer DB 2007. Offsets for land clearing: no net loss or the tail wagging the dog? *Environmental Management and Restoration* 8: 26–31.

<sup>45</sup> The Sustainability Consortium, [www.sustainabilityconsortium.org](http://www.sustainabilityconsortium.org) (retrieved 30 January 2012).

GHGs are important but are not the only issues looked at using life cycle techniques. Life Cycle Assessment (LCA) within a supply chain can be used to assess different aspects, including water use, waste and recycling, and biodiversity damage. For the moment the consortium will focus on three impact types for each product – GHG emissions, water use, and biodiversity impacts – to build a database of the environmental credentials of products sold by retailers.

### **What next for New Zealand businesses?**

New Zealand's primary sector has long thrived on the natural advantages of the country to compete successfully in the global export market and provide good quality products around the world. New Zealand benefits from its 'clean, green' image but as the retailer and business approaches to addressing environmental issues become sophisticated the validity of that image is increasingly and more openly questioned. Primary sector companies must be able to demonstrate and communicate their environmental credentials through a wider commitment to the sustainability agenda.

Retailers have been at the forefront of initiatives to distinguish greener products from other products reaching the shelves. However, global multinational businesses are increasingly acting on environmental issues, linking these to addressing growing customer need and smarter ways of generating profits.

The emergence of issues including water and biodiversity has been rapid and the bar is being raised all the time. The considerable influence from an early stage of Non-Governmental Organisations (NGOs), such as the Sustainability Consortium and the Water Footprinting Network and regulators, in the debates on water and biodiversity ensures these issues have gained significant momentum.

Conserving biodiversity has been a long-standing issue of importance in New Zealand, highlighted by the need to prevent the expansion of invasive pests and weeds.<sup>46</sup> Protection of New Zealand biodiversity is crucial as the country's economy depends heavily on primary industry production. Farming, horticulture, fishing, and forestry rely on natural resources that need to be protected. Given the extensive research in Crown Research Institutes (CRIs) and universities on New Zealand's unique biodiversity, an opportunity exists to provide a competitive advantage for New Zealand businesses through the development of meaningful indicators and their communication to major retailers and multinational companies.

Demands for improved environmental product credentials are greatest in European and United States markets but it would be wrong to dismiss this trend as irrelevant to key emerging markets for New Zealand exporters in Asia. Many of the businesses operating within developed markets, e.g., Walmart, Tesco, and Unilever, are at the forefront of supplying products in developing and emerging markets and product standards often used in developed markets are later adopted by developing nations. Many of the issues highlighted here relate to, or arise from, developed markets.

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<sup>46</sup> Ministry for the Environment 2009. Biodiversity <http://www.mfe.govt.nz/issues/biodiversity> (retrieved 14 February 2012).

It is a mistake to assume the fall from grace of high profile carbon labelling with retailers such as Tesco will mean environmental issues will be given a lower profile. Whole-of-life approaches using Life Cycle Assessment (LCA) techniques and other similar approaches have become more accepted, leading to a wider range of issues being considered to meet customer expectation. Both the global business community and everyday consumers are now more carbon savvy and this has allowed issues relating to water and biodiversity to rapidly become topical areas of concern. Changes in existing certification requirements are constantly being made to accommodate emerging concerns. If they are not proactive, New Zealand producers and exporters will become vulnerable to demands for low environmental footprints for products related to GHG emissions, water consumption, and biodiversity.


In the face of a use of food miles as an indicator of sustainability, many of New Zealand's primary sector exporters have developed a solid understanding of GHG emissions in the last few years; however, challenges still remain with adopting and delivering long-term reductions measures across value chains.

Initiatives like carboNZero have opened some doors for New Zealand exporters but this will be of little value without other efforts to build on this progress in other areas. Good internal environmental practices are often not sufficient. Exporters need to focus on the length of their supply chains, and supplier verification issues as supply chain audits are increasingly an everyday part of business. Life cycle assessments have been completed for only a few selected product groups but more life cycle data are needed to develop appropriate responses to demands for better environmental credentials and to communicate the advantages of New Zealand products and services. The disclosure of greater information and verifying environmental credentials through independent certification is growing in importance.



A challenge to all exporters is to respond to the current trends in a manner that not only ensures actions are competitive and timely, and but also guarantees a continued license to operate in major markets. As requirements for the environmental verification of products and services increase, New Zealand exporters have numerous opportunities in the world market, based on New Zealand's natural advantages, particularly if the environmental credentials of products are proactively established and communicated in accessible ways.

Mike Barry, Head of Sustainable Business at Marks & Spencer, says, "It is important to be ahead of the game as regards the sustainability agenda but not to be too far ahead, as this risks alienation from the marketplace because nobody understands your business model". He also recently commented that New Zealand companies are "pushing at an open door" when it comes to differentiating themselves in the marketplace through their



environmental credentials. Innovation in pursuit of a sustainable business model requires some lateral thinking (along the product life cycle), some risk-taking, eco-innovation, collaborative thinking between different organisations, as well as long-term commitment, because it takes time to produce the desired result.