Delivering Mitigation and Adaptation: Climate change set to shape supply chains

Supply chains are critical to the global climate change response.

For the world to lower emissions, access to the products that enable decarbonisation is required. In addition, to build climate resilient communities that can withstand the physical impacts of climate change, access to the products that will enable adaptation action is required.

Trade of goods and services, and all that trade entails – transport, logistics, regulation – is critical to the climate response. This places supply chains at the centre of the climate crisis, as the delivery agent of mitigation and adaptation activity.

Authors

Andrew Boivin
Partner and Sustainability and Climate Lead
Auckland, New Zealand

Amy Sparks
Associate Director
Corporate Finance – Sustainability and Climate
Auckland, New Zealand

Vulnerabilities and climate change solutions

Supply chains are vulnerable to many disruptions, including climate change itself. For successful global trade of products and services that enable mitigation and adaptation, supply chains must be resilient. Supply chains – global and local – are heavily exposed to the physical impacts of climate change. Extreme weather events can cause large and long-lasting disruption to supply chains. Therefore, supply chain resiliency includes resilience to the physical impacts of climate change.

Understanding this nexus – that supply chains are both critical to the climate change response and extremely vulnerable to the impacts of climate change, puts supply chains at the heart of the climate crisis. Recognising the climate-related trends and influencing pressures impacting supply chains will help organisations prepare for the future and build resiliency. We identify four global climate-related trends that will shape supply chains, impact New Zealand's supply chain exposed industries, and influence New Zealand's climate change response.

^reference: https://www.japantimes.co.jp/news/2022/08/12/business/tokyo-green-transition-finance-hub/

Trend 1: Supply chains will shift. Disruptions will persist.

New suppliers coming to market to meet the demand presented by the climate change response means supply chains will change. New supply hubs will emerge as some countries dominate supply of new 'climate change solution' products. This may challenge current economic power balances.

The physical attributes of supply chains will also change. The types of products that need moving, how the products are moved, and the volumes required, will change. Considering practical elements is important. Ports that can accept and assemble 'climate change solutions' – e.g. wind turbines – may have advantages over ports that cannot.

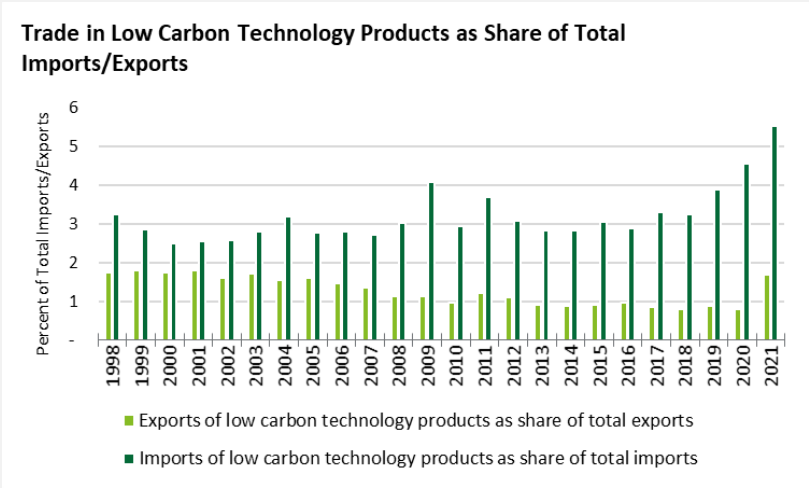
Supply chains will continue to be disrupted through the changing demand-supply dynamics, and by the physical impacts of climate change. Managing exposure to disruption of supply chains will be critical for New Zealand.

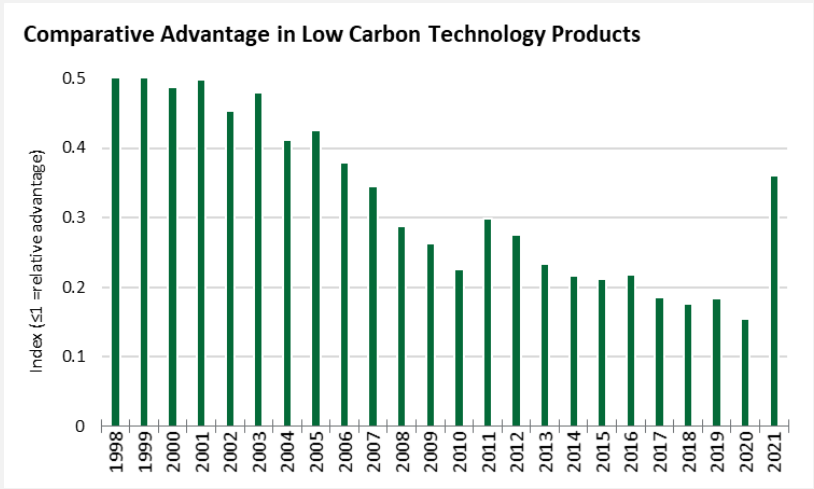
Not only is New Zealand exposed to an increase in severe weather events at home, but climate-related disruptions offshore can drastically impact global supply chains of which New Zealand is reliant. Adaptation planning must involve resilience planning in this context.

Climate Change Solutions: Any product or service that is directly related to climate change mitigation or adaptation – for example, lithium, EVs, wind turbines, carbon capture technology, skilled persons, climate technology.

Disruptions to supply chains

New Zealand's Trade in Low Carbon Technology Products and Comparative Advantage





https://climatedata.imf.org/pages/bp-indicators

Trend 2: An increase in trade of 'climate change solutions'.

There will continue to be high demand globally for supply of components that enable the transition to lower carbon economies. For example, as wind farms continue to be built globally, demand for all the components needed to install these will continue. Supply will ramp up to meet those demands. Another example is EVs. We have seen supply increase, with most major car companies heavily investing in EV technology. Continued lithium supply is still a concern with current battery technology, however new battery technologies that do not require lithium may solve these supply pressures (amongst other new technologies).

Many governments have recognised the importance of changing trade dynamics for 'climate change solutions'. The United States Inflation Reduction Act prioritises climate change by onshoring manufacturing – securing supply. Japan has also recognised the importance of supply chains and climate change – aiming to becoming a green finance hub for Asia, which according to the executive director of the Organization of Global Financial City Tokyo could help strengthen their supply chains and economic security*.

In New Zealand, most of the products we need for decarbonisation – either the raw materials (e.g. building materials) or finished products (e.g. EVs) – need to be imported. New Zealand heavily relies on global supply chains to respond to climate change. The charts to the left show the increase in New Zealand's trade of low carbon technology. New Zealand is a net importer of low carbon technology, and for many years has had a comparative disadvantage in trade of low carbon technology products globally.

The challenge for NZ is being in a position to guarantee supply, particularly in the short term as demand is likely to continue to outweigh product availability. As many nations will be global market takers of climate change solutions, we may see demand preferences for 'just in case' versus 'just in time' to secure supply and secure 'climate change solutions'.

*https://www.japantimes.co.jp/news/2022/08/12/business/tokyo-green-transition-finance-hub/

Pressures to decarbonise

Trend 3: Scope 3 emissions will come into focus: it's not just you who cares about your carbon

An ironic characteristic of the global decarbonisation challenge is that the supply chain must deliver the components to decarbonise, but it must do so in a low emissions way. This is reflected in the opening line of a 2021 publication by the World Bank: "While trade exacerbates climate change, it is also a central part of the solution because it has the potential to enhance mitigation and adaptation". Transport and logistics is a large contributor to global emissions. Pressure to decarbonise will continue to come from an increased focus on Scope 3 emissions.

Scope 3 emissions:

Organisations are increasingly reporting and managing their Scope 1 and 2 emissions – the emissions they 'own' or the emissions from their energy use. Scope 3 emissions, the emissions organisations do not 'own' but are essential to upstream and downstream operations, are also increasingly being included in reporting and transition plans. This places pressure on the logistics sectors as for most companies, logistics/freight comprises a large part of their Scope 3 emissions. In New Zealand, Climate Reporting Entities (larger NZ companies) are required to report on their Scope 3 emissions under the new climate-related disclosure regime, which came into force in January 2023. This will place pressure on the supply chain from downstream customers to decarbonise.

"While trade exacerbates climate change, it is also a central part of the solution because it has the potential to enhance mitigation and adaptation"

World Bank: The Trade and Climate Change Nexus : The Urgency and Opportunities for Developing Countries

https://openknowledge.worldbank.org/handle/10986/36294

Trend 4: Pressure to decarbonise from investors will increase

Pressure to decarbonise the supply chain will also come from investors. This is driven both by mandatory reporting (such as the climate-related disclosures) and publicised net zero commitments. Net Zero in an investment portfolio context means balancing the greenhouse gas emissions produced by one investment, by an equal amount being removed from the atmosphere through natural absorption or technological advancements in another investment. The easiest way for investors to lower portfolio emissions is to either divest from high emitting sectors and companies or engage to influence the companies' emissions profile. We expect both of these approaches to increase.

Transport and logistics more broadly is an obvious high emitting sector that investors with a Net Zero commitment, or investors looking for lower carbon alternatives, are likely to scrutinise. Of course, many companies in the sector have commitments to decarbonise themselves. For example, Port Nelson has committed to 40% reduction over the next 14 years. In the next few years, we expect an increased focus by investors on emissions reduction targets, particularly Net Zero commitments, and the decarbonisation plans that support them.

In addition, the exposure of transport and logistics companies to physical climate change risks is high. This is likely to add an additional red flag for some investors, and a prompt to review the real risk associated with their investment. As climate-related disclosures are released, the exposure of some companies to physical risks of climate change will be better understood.

In Summary

Supply chains are both critical to the climate change response and extremely vulnerable to the physical impacts of climate change. We see four climate trends that are set to shape supply chains:

1. Supply chains will shift. Disruptions will persist. Climate Change will cause continued supply change disruption, and some permanent changes.
2. An increase in trade of 'climate change solutions'. The demand for products and services needed to decarbonise and adapt to climate change will increase.
3. Scope 3 emissions will come into focus. Climate-related disclosures requirement to report on Scope 3 emissions means 1 unit of carbon becomes the interest of many throughout the supply chain.
4. Pressure to decarbonise from investors will increase. Investors will look to decarbonise portfolios and will scrutinise heavy emitters.

Organisations in the sector that can understand the changing supply and demand dynamics in light of climate change, will not only survive – but thrive.