## Title: The growing impact of extreme weather events on Australia’s supply chain routes

Source: Howden Group

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#### **Australia’s supply chain network is facing increasing disruptions due to extreme weather events. With a reliance on road, rail, air, and sea transport, the country’s freight infrastructure is vulnerable to natural disasters such as floods, cyclones, and bushfires.**

The devastating 2022 floods, Cyclone Seroja in Western Australia, and the impending threat of Cyclone Alfred approaching Queensland and New South Wales, highlight the growing risks to critical supply routes.

##### **Impact on road transport**

Road transport is the backbone of Australia’s supply chain, facilitating the movement of goods between urban centres and regional areas. However, severe flooding and storms have repeatedly cut off key highways, leaving entire communities isolated. The 2022 floods, for instance, severely impacted the Pacific Highway and Bruce Highway, the major freight corridors linking Brisbane, Sydney, and Melbourne. This resulted in widespread delays for essential goods, including food, medical supplies, and fuel. Similarly, Cyclone Seroja in Western Australia caused extensive road damage, disrupting logistics operations in mining regions subsequently cutting off supply routes to remote communities.

The Ex- Cyclone Alfred posed another significant risk. Heavy rainfall and strong winds inundated roads and bridges along the east coast. With increased extreme weather events, road operators must consider adaptive strategies such as enhancing infrastructure resilience and implementing alternative freight routes to mitigate disruptions.

##### **Impact on rail transport**

Rail freight provides an efficient means of transporting bulk goods across the vast Australian landscape. However, extreme weather events have exposed the vulnerability of rail networks. During the 2022 floods, extensive damage to rail lines in Queensland and New South Wales led to months-long closures, delaying coal, grain, and intermodal freight movements. The Perth-Adelaide rail corridor, a crucial link for east-west freight, was also affected, causing significant disruptions to supply chains dependent on transcontinental trade.

Similarly, cyclone-induced landslides and flooding can weaken railway embankments, making them unsafe for transport. As Cyclone Alfred approaches, rail operators are bracing for potential washouts and landslips, particularly in flood-prone regions. Investing in climate-resilient rail infrastructure and improving emergency response planning are immediate considerations to prevent prolonged disruptions.

##### **Impact on Air Freight**

Air freight is vital for high-value and time-sensitive goods, particularly for the retail, pharmaceutical, and agricultural sectors. However, extreme weather events frequently ground flights and cause major backlogs. Brisbane Airport experienced severe disruptions during the 2022 floods, leading to delays in medical and perishable shipments. The recent cyclone in Western Australia similarly affected air cargo operations, disrupting supply chains for mining equipment and urgent deliveries.

As Ex-Cyclone Alfred looms over the east coast, major airports in Brisbane and the Gold Coast have closed, and Sydney is likely to experience cancellations and operational delays. This could have a ripple effect on industries dependent on airfreight, making it crucial to develop contingency plans, such as diversifying airport hubs and increasing warehousing capabilities for essential goods.

##### **High-risk industries and immediate considerations**

Certain industries are more vulnerable to supply chain disruptions caused by extreme weather. Agriculture, retail, mining, medical and construction are among the highest risk sectors, given their reliance on consistent freight movement:

* Agriculture: Floods and cyclones disrupt transport routes for fresh produce, livestock, and fertilisers. Delays can lead to significant economic losses and food shortages. Cyclone Alfred poses a direct threat to key crops in Queensland and New South Wales, including bananas, sugarcane, avocados, macadamias, and citrus fruits. Heavy rainfall and strong winds can damage crops, leading to lower yields and supply shortages in domestic and export markets.
* Retail: Supply chain delays impact inventory replenishment, particularly for supermarkets and e-commerce. Shortages in perishable goods and household essentials can lead to consumer panic-buying.
* Mining: Rail and road damage hinders the movement of resources such as coal, iron ore, and liquefied natural gas (LNG). Prolonged disruptions can lead to export losses and economic downturns.
* Medical supplies: Floods and cyclones can disrupt the distribution of pharmaceuticals, medical equipment, and hospital supplies, causing critical shortages and delays in healthcare services.
* Hardware and building materials: Severe weather events often cause damage to infrastructure, increasing demand for building supplies while simultaneously disrupting their transport. Delays in construction materials can stall rebuilding efforts and inflate costs.

##### **Building business continuity in the face of supply chain disruptions**

For businesses reliant on supplies from disaster-affected areas, it is crucial to implement strategies to maintain continuity and mitigate the impact of disruptions. Some key actions include:

* Diversifying suppliers: Establish relationships with multiple suppliers across different geographic regions to ensure an alternative supply source in case of regional disruptions.
* Stockpiling critical goods: Maintain adequate inventory levels of essential products to cushion against short-term shortages caused by supply chain disruptions.
* Enhancing logistics flexibility: Work with logistics partners to identify alternative transport routes and modes of delivery that can be used when primary routes are inaccessible.
* Improving forecasting and risk management: Integrate weather and disaster forecasting into supply chain planning to anticipate potential disruptions and take proactive measures.
* Strengthening warehousing and distribution networks: Consider decentralising storage facilities to reduce dependency on a single location and improve resilience to regional disasters.
* Leveraging technology: Use real-time tracking and predictive analytics to monitor supply chain risks and improve decision-making in response to disruptions.

To mitigate these risks, businesses and government authorities must take proactive measures. Strengthening transport infrastructure, improving weather forecasting integration in logistics planning, and establishing alternative supply routes can help build resilience. Investment in stockpiling essential goods and fostering collaborations between supply chain stakeholders can also ensure continuity during crises.

With climate change increasing the frequency and severity of extreme weather events, Australia’s supply chain faces mounting challenges. By implementing strategic solutions, the country can better prepare for future disruptions and safeguard critical industries from economic and logistical fallout.