

# Adaptive Value Chains Case Study

## Smith's Potato Chips

The impacts of climate change are felt along the whole chain of businesses that produce, handle, process and market agri-food products. Whilst there is a growing level of concern about impacts on chains, there is still minimal guidance for companies to understand and act on the potential risks. Featuring insights from value chain analysis, consumer research and carbon and water footprint assessment, this case study demonstrates the balance that value chains need to strike between productivity, sustainability and adaptation goals in order to remain competitive.

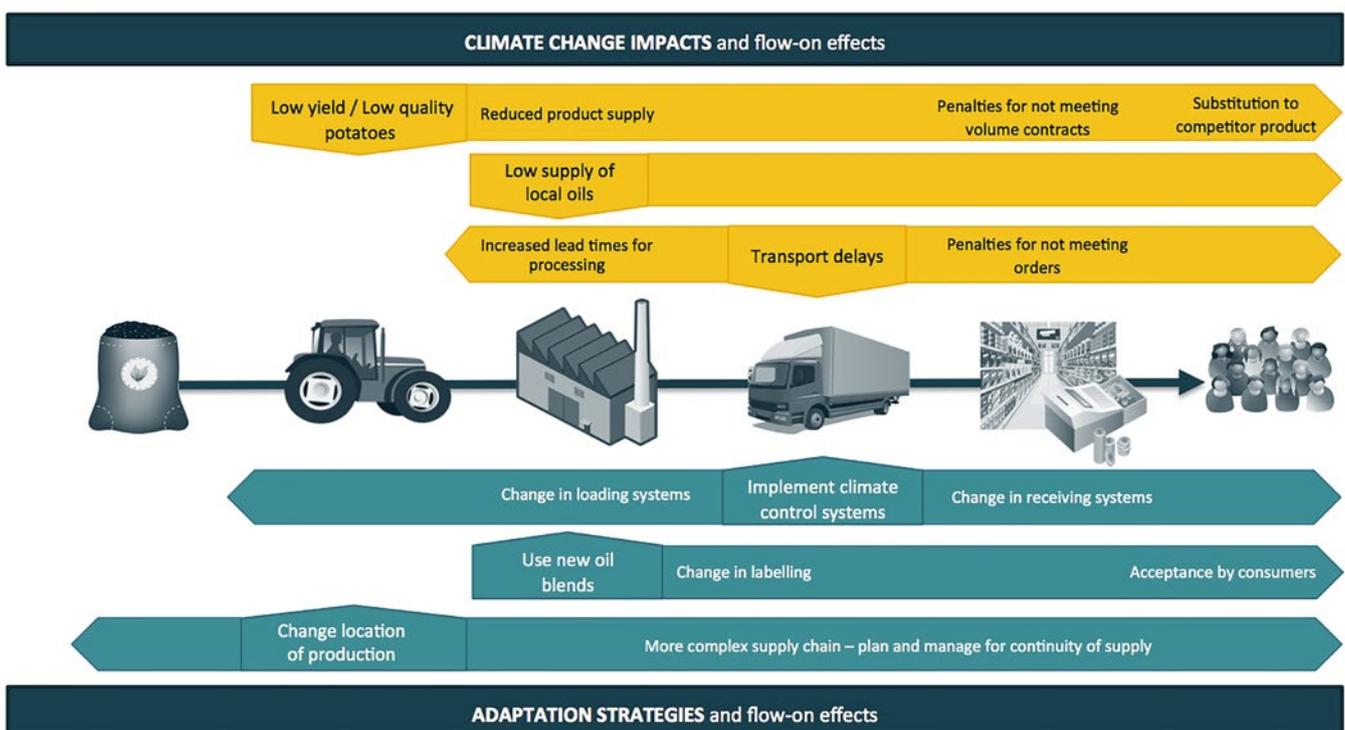
### The Smith's Value Chain

The Smith's Snackfood Company is one of PepsiCo Australia & New Zealand's four business units, offering a range of brands such as Smith's Chips, Doritos Corn Chips, and Sunbites Grain Waves, among others. The company operates as a vertically integrated business that aims to manage their internal and external chains in order to consistently deliver high quality products to consumers, in the most efficient and sustainable way possible. Value chain functions span beyond boundaries to ensure seamless flow of product from one end to another, driving efficiencies.

### Impacts and adaptation along the chain

The Smith's value chain is exposed to the risk of climate change and variability, especially at the farming stage. These risks indirectly affect other activities in the chain, particularly processing. Efforts are in place to adapt potato production to current and future climate risks. Due to the highly integrated and coordinated management of the Smith's chain, adaptation in the farming stage has direct benefits to efficiencies and performance of multiple stages further down the chain, including logistics, manufacturing and retail performance.

Although adaptation is predominant at the farming stage, the Smith's chain shows evidence of adaptation across multiple activities along the chain (Figure 1).



**FIGURE 1**

Examples of how climate change impacts and adaptation along value chains can have direct, and indirect, effects on multiple stages along the chain

## Consumer perspectives of adaptation<sup>1</sup>

Consumers have the potential to drive adaptation along the chain, especially if adaptation strategies create additional value that consumers are willing to pay for. Potato chips are a fast moving consumer good in a highly competitive category, which Smith's leads. The range of products available in this category and the constant introduction of new product types indicate that there is a strong need for companies to constantly innovate and create consumer value in order to remain competitive.

Consumers are less likely to respond favourably to adaptation strategies in this category because of the large number of fairly priced and comparable substitutes. Consumers place little value in adaptation in the potato chip category, showing a high degree of price sensitivity. Adaptation in this food category is more likely to be valued if its primary purpose is to protect farmers.

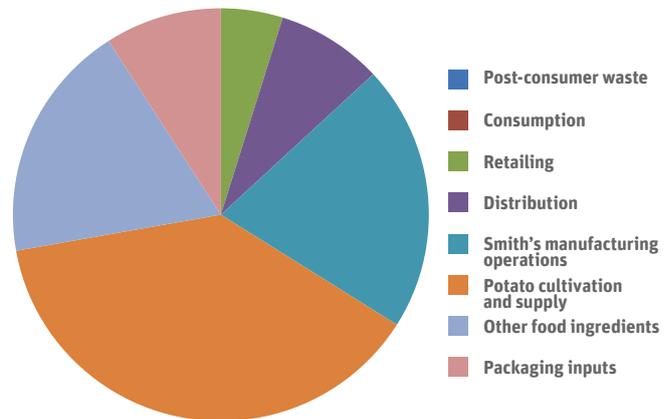
## Carbon and water footprint assessment<sup>2</sup>

Information from carbon and water footprint assessments can help a chain understand the physical, financial and reputational risks associated with climate change and the adaptation possibilities. A screening level assessment was designed to identify hotspots in the carbon and water availability footprints of Smith's chips produced at Smith's Brisbane-based Tingalpa operation. The rapid assessment involved the integration of primary data from Smith's with data from a previous study of chip production at Smith's Regency Park (South Australia) operation and secondary data from databases.

The carbon footprint of Smith's potato chips manufactured at Smith's Tingalpa factory was assessed as Category C (2-5kg CO<sub>2</sub>e per kg product sold, Figure 3), with potato production and supply having the greatest contribution (38%, Figure 2). On the other hand, the consumptive water use in the life cycle of Smith's chips was assessed as Category D (>500L per kg product sold, Figure 3). Irrigation water use for potato cultivation was the greatest contributor (95%).

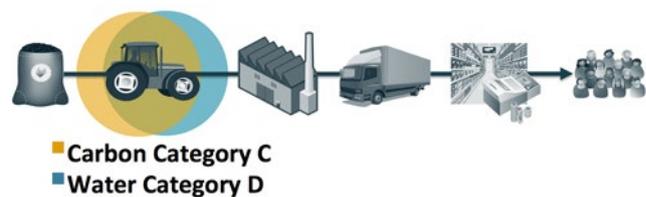
A key risk faced by the Smith's chain in terms of its water footprint is that some of its production areas are in high water stress locations, which could further be at risk from climate change, in addition to a potential reputational risk as a result of the high GHG contributions of the same value chain activity. While this activity is outside the direct operational scope of Smith's, the business recognises the opportunity to mitigate risk through the whole chain.

Through the Sustainable Farming Initiative<sup>3</sup>, Smith's helps guide sustainable practices by its suppliers. Consistent with its adaptation strategies, mitigation strategies are likewise addressed across the value chain.



**FIGURE 2**

Profile of life cycle GHG emissions (CO<sub>2</sub>e) for Smith's chips produced at Tingalpa



**FIGURE 3**

Carbon and water footprint hotspots along the Smiths value chain

The Smith's case study demonstrates how adaptation across value chains can be approached. Considering the implications of risk and action across multiple activities in a chain is a start. By building on management strengths across the value chain, this case study shows that adaptation and mitigation initiatives can be embedded in existing company competitive strategies, creating win-win opportunities.

### FOR FURTHER INFORMATION

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<https://adaptivevaluechains.org>

<sup>1</sup> The summary consumer report is available on: <https://publications.csiro.au/rpr/download?pid=csiro:EP148832&dsid=DS2>

<sup>2</sup> For further information about the use of carbon and water footprint assessment for this project, and categories, see the paper 'Climate Change Adaptation Strategy in the Food Industry – Insights from Product and Carbon Footprints' on: <http://www.mdpi.com/2225-1154/4/2/26>

<sup>3</sup> Read more about the PepsiCo Sustainable Farming Initiative <http://www.pepsico.com/Purpose/Environmental-Sustainability/Agriculture>