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Global Potash Supply Chain Impacts: Geopolitical Events and Climate Change

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During the past 20 years, the global requirement for potash as a major component of fertilizer has increased due to a growing and wealthier world population. Potash production has generally met or exceeded global demand with much of the potash exported from Canada (30%), Belarus (17%) and Russia (20%) to Brazil, India and China. The global potash supply chain is susceptible to physical disruption because potash is a perishable bulk commodity transported via specialized railcars and ships. Canadian potash is shipped 2,000 km from the Elk Point Basin to Vancouver, B.C., Thunder Bay, Ont., or Portland, OR. Belarussian potash is shipped 1,000 km via Ventspils, Latvia or Klaipeda, Lithuania on the Baltic Sea or 2,000 km to Nikolayev, Ukraine on the Black Sea, and Russian potash is shipped 2,800 to 3,000 km either via St. Petersburg or Nikolayev or 8,000 km to Vostochny on the Pacific Ocean. In 2021, EU and US sanctions on Belarussian potash caused an increase in prices from \$250/t into the \$600/t range. In 2022, global market potash prices have climbed to over \$800/t as result of sanctions on Belarus and Russia, war-related closure of rail lines through Ukraine, and destruction of Black Sea ports effectively removing 30 to 40% of potash from global supply.

Climate change related events such as droughts across northern Europe, Russia, and Brazil and flooding in China and Canada may have more subtle but profound impacts on the potash supply chain. These events influence potash production and transportation, planting schedules, and harvests in many countries contributing to increased grain prices (up 36 to 82 percent in 2022) and restricted food supplies. A 2018 drought in Germany halted production and 7 potash train derailments in Canada during the past 7 years have disrupted rail service and impacted potash exports.