



The following charts illustrate the three-dimensional approach to assessing risk for the aforementioned industries. The charts also identify the business impacts and highlight capital assets that businesses can strengthen to build resilience. The climate risks, business impacts, and resilience assets listed in the charts are examples from the region that we gleaned from our research. They are not exhaustive across the industry or region, nor are they necessarily relevant for every business.

AGRICULTURE

Climate Risk

HAZARD

Changing rainfall patterns • Seasonal shifts • Sea-level rise
Floods • Salinization • Drought • Fires • Rising temperatures
Heatwaves • Disease affecting people and crops

EXPOSURE

- Half of Vietnam’s rice is produced in the Mekong Delta, which is exposed to flooding and salinization from sea-level rise.⁸³
- Vietnam’s Central Highlands, where nearly 80 percent of the country’s coffee⁸⁴ and 24 percent of tea⁸⁵ are grown, is exposed to drought, soil erosion, and pest infestation.⁸⁶
- Indonesia is the second largest cocoa producer globally and its production is affected by increasing temperatures and fluctuating rainy and dry seasons.
- Indonesia’s plantations for commodities like palm oil, cocoa, and coffee are in landscapes already experiencing significant fire risks, exacerbated by severe drought.⁸⁷
- In Thailand, where 40 percent of the population works in agriculture, 74 of the 77 provinces were affected by droughts in 2016.⁸⁸
- In Myanmar, drought and unpredictable rain patterns impact fruit production and salinization in coastal areas affects grain and pulse producers.⁸⁹

VULNERABILITY

- **Crops are sensitive** to changes in temperature and precipitation. Climate change can reduce rice yields by 20-30 percent.⁹⁰ Salinization and inundation could decrease rice productivity by 13 percent in the Mekong River Delta by 2050.⁹¹
- The Mekong Delta is home to 17 million people, with 80 percent engaged in rice production.⁹² Because the majority of the population’s workforce is **dependent** on rice cultivation, changes to production can harm the region’s socioeconomic well-being.
- Multinational companies are **reliant** on cocoa from Indonesia. The crop is affected by climate hazards, and as a perennial plant, it cannot be moved easily to a different growing location.
- There are **resource constraints**, including limited access to financial services, crop insurance, or support from government agricultural extension services.
- There is a **lack of adequate infrastructure**, including drainage systems, irrigation technology, and storage facilities for agricultural inputs and products.
- There are **competing water needs** for drinking and industrial use **limited information** available on weather, crop calendar, and early warning systems and **limited awareness and training** to manage diversified cropping systems.



Business Impact



Strategy: Climate change can affect growing locations and agriculture supply, including the quality and quantity of yields.



Finances: Businesses can lose profits from low yields and damaged land. And they can experience commodity price fluctuations from low or uncertain supply.



Operations: Farmers may have difficulties planning production due to shifts in planting and harvest seasons.



Human Resources: Farmers may face health risks, including infectious, vector-borne, and respiratory diseases.



Sales & Marketing: Sales can decline if production is limited or quality is poor.



Climate Resilience

CAPITAL ASSETS



Physical Capital: Invest in irrigation technology and flood barriers to curb soil loss and fertilizer runoff.



Natural Capital: Strengthen plant barriers to control flood waters; invest in better sowing and cultivation practices for erosion control and cropping patterns; diversify crop systems.



Human Capital: Support farmer trainings in practices that boost plant and soil health.



Financial Capital: Identify insurance products that cover climate and disaster risks for suppliers.



Social Capital: Form farming cooperatives to share risk among small-scale suppliers.



Political Capital: Partner with peers to influence policies that can channel greater investment for agriculture insurance and subsidies for crops affected by climate impacts.