The impact of climate change risk

The Coca-Cola Company and its global bottling partners, including Coca-Cola HBC, have identified eight material risks relating to the physical and transitional impact of climate change on our business and these are depicted in the following diagram.

For more details on these eight risks, please see previous pages 68 and 69, where the colour codes of the risks reflect the diagram below.

Cause	Risk	Agriculture and ingredients	Packaging	Manufacturing	Distribution	Cold drink equipment	Customers and communities
Estimated share of carbon emissions							
		25%	31%	11%	6%	27%	
Business impacts: Physical risks of climate change							
Changes to weather and precipitation patterns	Limits availability of ingredients and raw materials	●	●				
Extreme weather events	Disrupts production			●			
	Disrupts/limits distribution				●		
Water scarcity	Disrupts/limits production			●			
Business impacts: Risks of transition to a low-carbon economy							
GHG regulation	Increases cost of packaging materials		●				
	Increases cost of manufacturing, distribution and cold drink equipment			●	●	●	
Changes to consumer perceptions	Reputational risk						●
Water regulation	Disrupts/limits production			●			

Managing water risk across our territory

In 2021, we conducted a detailed assessment of the impact of climate change on the availability and cost of water across all of our markets under different climate scenarios.

We recognise that we have a responsibility over and above meeting our production needs. Access to clean water is a fundamental human right and we are committed to ensuring water security for local communities as well as our business in areas of water stress.

Climate change is expected to increase the level of water stress in a number of our countries, making water scarcer and more valuable in those countries. This means that our costs will increase, both to meet the needs of our business but also to ensure we can replenish the watersheds in those countries to support local communities.

In our 2021 water risk assessment, we focussed on our production facilities to determine which plants are more likely to be affected by climate change, the extent to which they may be affected and the financial impact of ensuring sustainable supply for both our production and the local community. In future years, we will gradually broaden the scope of our assessment to also consider water risks associated with our supply chain.

To conduct the 2021 assessment, we estimated annual production volumes up to 2030 and 2040 for each plant, based on long-range planning estimates. We then determined the water utilisation rates for each plant for normal and peak production as well as the capacity of our water sources without considering the impact of climate change. This allowed us to create a baseline model.

We then used data available from the World Resources Institute's (WRI) Aqueduct Water Risk Atlas to identify the impact of climate change on the watersheds supporting each plant using both an optimistic and a pessimistic scenario for climate change impact. In this assessment, the impact of climate change is the difference between water utilisation rates in our baseline and the WRI scenarios.

The additional increase in water utilization rates, converted into water volume, was multiplied by the 'true cost of water'[1] to provide an estimate of the financial impact of both increased production demand and climate change. For plants in water-stressed areas – our water priority plants – the cost of replenishing the watershed based on water withdrawal was added.

We estimated the additional operating expense required for each plant to meet additional water needs, as well as one-off CapEx requirements where appropriate to support our risk mitigation programme.

In general terms, our assessment indicated that climate change is not likely to increase the number of plants assessed as water priority plants in our existing territory, although it is expected to increase the level of water stress in those areas. Climate change is unlikely to impact the useful economic life of any of our plants; however we will need to invest in additional water infrastructure to meet our needs as well as maintain our commitments to replenish the local watershed in water priority areas.

Optimistic climate scenario

The optimistic scenario we used for assessment purposes represents a world with stable economic growth and global and national institutions making slow but steady progress towards achieving development goals. Globally, carbon emissions start declining by 2040 and temperature increases are limited to between 1.1 and 2.6 degrees (RCP4.5).

Under this scenario, our operations in Armenia, Bulgaria, Greece, Cyprus, Russia, Italy and Nigeria would be located in water-risk areas.

By 2030, average baseline water stress is expected to increase by 30%. To meet our production needs as well as replenish the local watersheds in our water priority areas, we estimate our annual water costs will increase by 40% over and above our baseline costs, and additional one-off CapEx costs in the lead-up to 2030 of €42million will be required.

By 2040 under this scenario, average baseline water stress is expected to increase by 47%. To address these risks, we estimate our annual water costs will increase by 42% over and above our baseline cost and additional one-off CapEx costs in the lead-up to 2040 of €79million will be required.

Pessimistic climate scenario

The pessimistic scenario used in our analysis represents a world with uneven economic development, including higher population growth but lower GDP growth. Globally, carbon emissions continue to rise and average temperature rises between 2.6 and 4.8 degrees (RCP8.5).

As with the optimistic scenario, our facilities in Armenia, Bulgaria, Greece, Cyprus, Russia, Italy and Nigeria would be located in water-risk areas under the pessimistic scenario.

By 2030, average baseline water stress is expected to increase by 27%. We estimate our annual water costs to meet our production needs as well as replenish the local watersheds in our water priority areas will increase by 45% over and above our baseline costs. Additional one-off CapEx costs in the lead-up to 2030 of €30million will be required.

By 2040, average baseline water stress is expected to increase by 46%. We estimate our annual water costs to meet our production needs as well as replenish the local watersheds in our water priority areas will increase by 41% over and above our baseline costs and additional one-off CapEx costs in the lead-up to 2040 of €78million will be required.

Note: The 'pessimistic' scenario has less impact on our business than the 'optimistic' scenario in a number of areas. This is because under the pessimistic scenario used in the Aqueduct modelling, there is less urban growth. As the majority of our plants are located in or near large urban areas, there is less stress on the local watersheds.

Mitigating water risk

Efforts to address the risks identified in this analysis could include watershed protection and restoration, rainwater harvesting, and infrastructure improvements to provide communities with greater access to water for drinking and sanitation. We will continue to implement water usage reduction plans and obtain certification for our plants under the Alliance for Water Stewardship programme.

1. The 'true cost of water' is a Coca-Cola system multiplier that is used to calculate both the internal costs of water but also a number of external factors such as potential for increased taxes and levies.

For more information on our efforts to address water challenges, see page 50.