

# The RESILIENCE Imperative

**W**E LIVE IN A TIME OF INTERCONNECTED crises, and it's the growing intensity of those issues, looked at through the lens of investors, that has propelled the rise of ESG.

Fundamentally, ESG has emerged as a way for investors to assess the resilience of business in the face of these intensifying challenges.

"Resilience" comes from the Latin *resiliens*—to "jump back." In business, it means the ability of a company to respond and adapt quickly to disruptions that threaten people, operations, reputation and profit.

Of course, investors need a way to understand the resilience of business amid societal disruption.

**Around the world, climate-related disruptions are no longer theoretical risks, but here-and-now realities for business.**

**By JON MILLER.**

They need to know the degree of exposure companies face to environmental and social risks. Investors must be able to assess how well companies can resume operations after a disruption. Investors need broadly to understand a company's vulnerability to major external trends.

This has been driven by climate. Climate impacts have often been seen as futuristic. But they are no longer remote risks; they are realities businesses face today. Three in 10 businesses worldwide have already experienced operational impacts from climate change, according to a report by Deloitte.

In this section we offer snapshots of recent climate-related disruptions that have challenged businesses's resilience.



Tourists visiting Sun Moon Lake in Taiwan during a drought in 2021 found only a dry lake bed.

## The TECH INDUSTRY Faces Climate-Related Disruption

Taiwan's semiconductor industry, which dominates the global microchip marketplace, has faced repeated water shortages due to drought, threatening tech supply chains. In Malaysia, a typhoon caused unprecedented flooding, impacting a critical node in the global semiconductor supply chain—chips are sent to Malaysia for

packaging before being shipped to the US and Europe. The knock-on effects of these disruptions have been far reaching, causing some US automobile manufacturers to suspend production.

The growth of cloud-based AI services is expected to dramatically increase tech-related water use. Server farms rely on vast amounts of water for cooling, and water use is projected to grow at a compound annual growth rate of 5.6% until the end of the decade. Some companies are already exploring alternative approaches—such as Microsoft's Project Natick, which is submerging server farm modules in the North Sea.

# Water Shortages

## Dent the Resilience of the Consumer Goods Industry

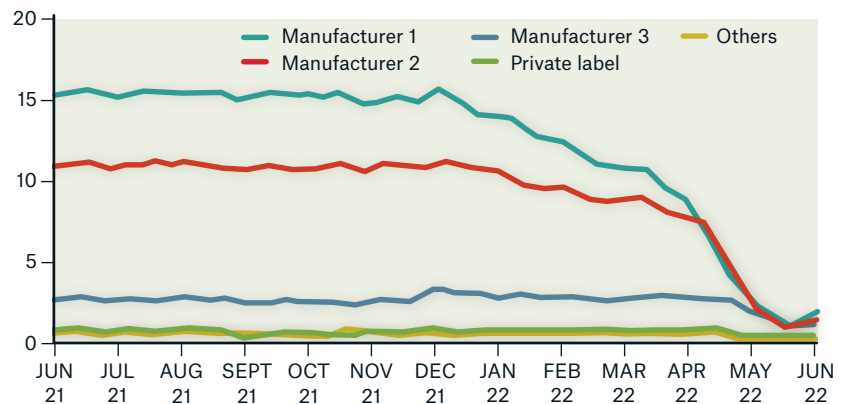
Better water resource management is one of three key ESG metrics that drives financial performance for consumer goods companies, according to a study by Boston Consulting Group. Enhanced conservation of water use alone correlated to higher earnings of 3.1 percentage points.

In 2022, a drought in Canada disrupted global supplies of mustard seed—a staple ingredient for food manufacturers. France, for instance, depends on Canadian imports of mustard seed. Analysis by NielsenIQ showed an 88% drop in the availability of mustard products for French consumers.



## DROUGHT IMPACT

Average number of mustard products on French grocery websites, June 2021 to June 2022.



Source: Data Impact by NielsenIQ

**88** PERCENT DECLINE, FROM 2021 TO 2022, IN MUSTARD PRODUCT AVAILABILITY FOR FRENCH CONSUMERS.

# VINDICATION

**A**MID THE BACKLASH AGAINST ESG, PERSONAL attacks have become an occupational hazard for climate researchers. But one such scientist, the University of Pennsylvania's Michael Mann, decided to fight back by filing suit against some conservative bloggers who had called him a fraud and compared him to a pedophile. After a 12-year legal battle, Mann in February won a \$1 million verdict.

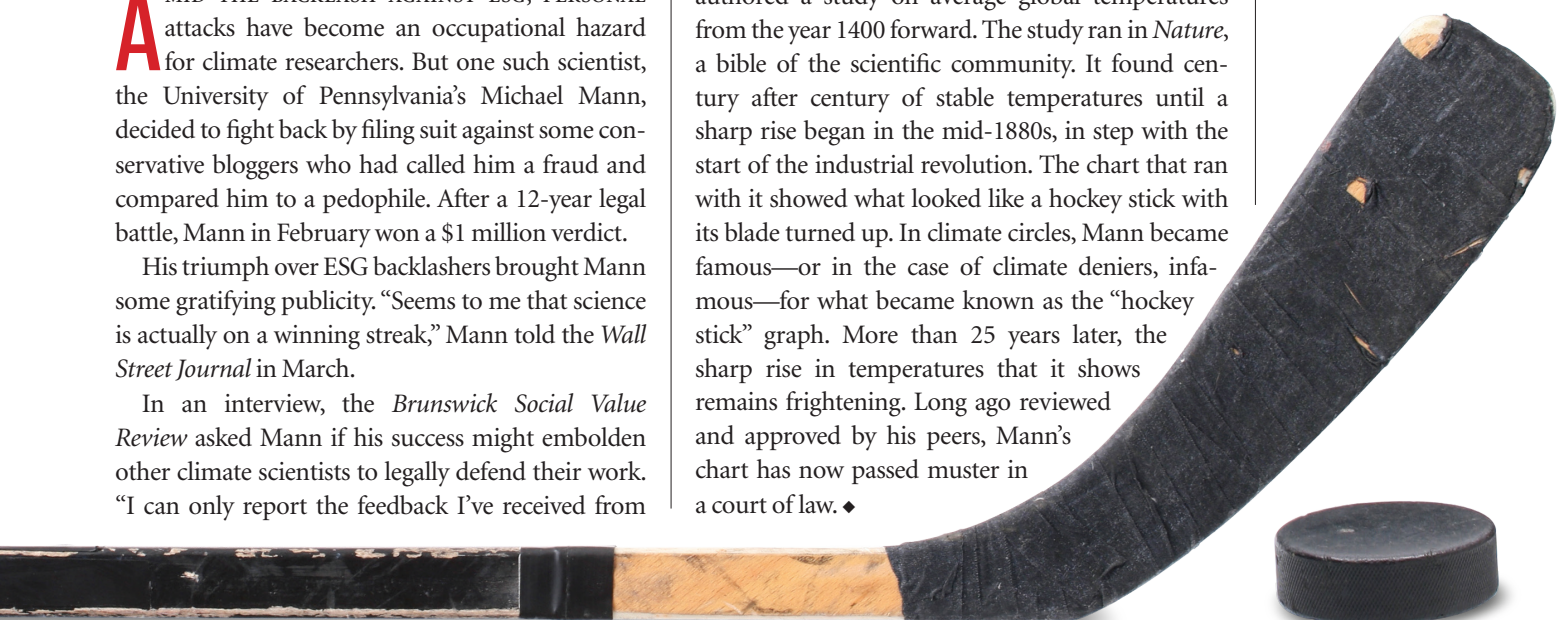
His triumph over ESG backslashers brought Mann some gratifying publicity. "Seems to me that science is actually on a winning streak," Mann told the *Wall Street Journal* in March.

In an interview, the *Brunswick Social Value Review* asked Mann if his success might embolden other climate scientists to legally defend their work. "I can only report the feedback I've received from

fellow scientists. And it has been rather effusive," says Mann. "Numerous colleagues have told me that they see this as a win for science and the scientific community, and that they find it reassuring."

As a postdoctoral researcher in 1998, Mann co-authored a study on average global temperatures from the year 1400 forward. The study ran in *Nature*, a bible of the scientific community. It found century after century of stable temperatures until a sharp rise began in the mid-1880s, in step with the start of the industrial revolution. The chart that ran with it showed what looked like a hockey stick with its blade turned up. In climate circles, Mann became famous—or in the case of climate deniers, infamous—for what became known as the "hockey stick" graph. More than 25 years later, the sharp rise in temperatures that it shows remains frightening. Long ago reviewed and approved by his peers, Mann's chart has now passed muster in a court of law. ♦

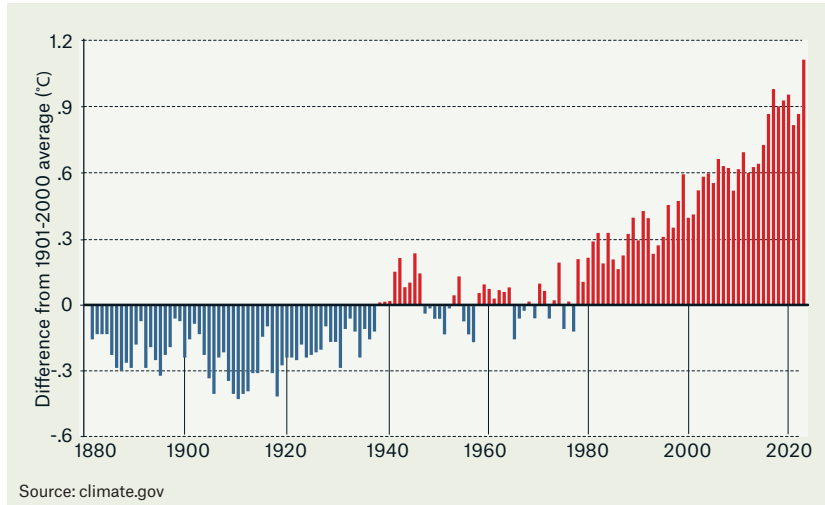
**A climate scientist's very good day in court.**





## GLOBAL AVERAGE SURFACE TEMPERATURE

Around the world, heat waves are already affecting businesses—very often by disrupting transportation. One estimate placed the cost of extreme heat in the US alone at \$100 billion a year—a figure that is projected to climb (as temperatures do as well).



**ROADS:** Extreme heat places greater strains on roads, engines and tires. Its effects can be measured everywhere from increased fuel consumption to cracked concrete and melted asphalt. One estimate from the US Senate concluded that the additional road maintenance caused by extreme heat could cost a total of \$26 billion by 2040.

**AVIATION:** Heat waves are more likely to ground flights than cold weather or storms. Aircraft performance is degraded by low air density, making it harder for planes to take off. Planes get 1% less lift with every 5.4°F (3°C). As one report concluded, to deal with extreme heat, "The airline has a few choices: Fly with less fuel, luggage or people."

**TRAINS:** Steel absorbs heat easily and steel rails can reach temperatures of 140°F (60°C) in a heatwave. This now happens with increasing frequency; the steel expands and buckles, causing significant travel disruption. This isn't only a problem for commuters—many businesses rely on rail freight in their supply chains.

# Texas Freeze

## Estimated Cost \$300 Billion

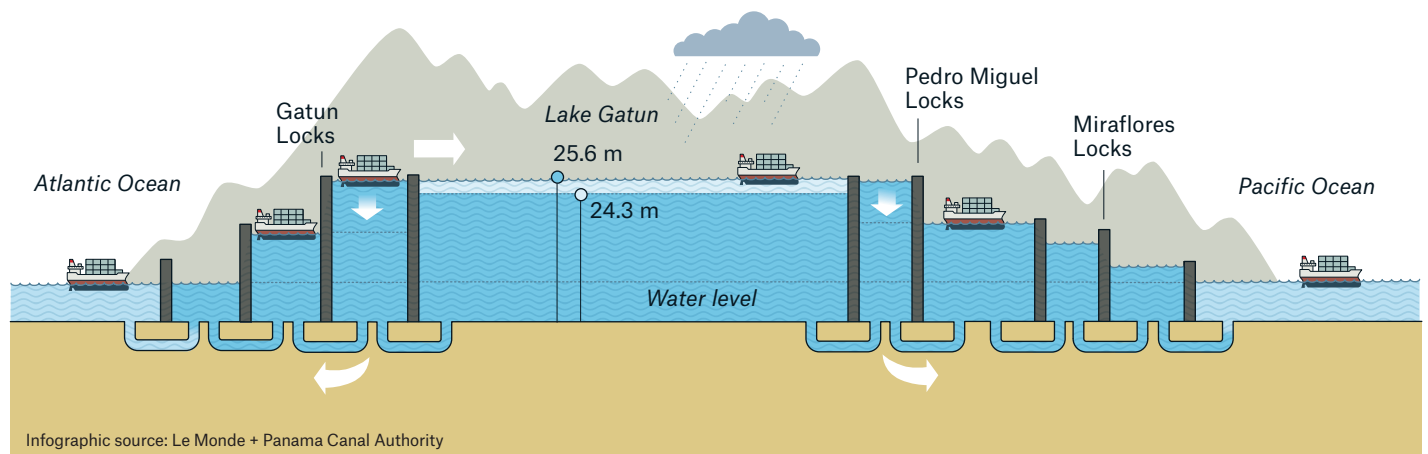
An ice storm in Texas in 2021 caused the worst involuntary blackout in US history, which led to shutdowns in technology and manufacturing plants, as well as severing supply chain links with the Pacific Northwest. Even a year later, businesses were reported to be struggling to recover from economic losses caused by damage to machinery and buildings. The Federal Reserve Bank of Dallas estimated the storm cost the state economy as much as \$130 billion—and that statewide measures to prevent a similar failure (such as winterizing oil and gas wells to prevent them from freezing) would total as much as \$200 million annually.



## LOW RAINFALL DISRUPTS GLOBAL TRADE

The volume of ships passing through the Panama Canal has been dramatically reduced by a severe drought, resulting in disruption to global shipping. The canal relies on water from rainfall, and has been down to a capacity of 16 ships a day. In normal times, 40% of US container traffic

passes through the canal. In the UK, the media reported delays on goods such as iPhones and exercise bikes as a result of the drought, as well as increases in the costs of some foods. As Bloomberg reported, the world faces a shipping traffic jam that could cost up to \$270 billion.



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World

# 'It's not drought, it's plunder'

## Mexicans without clean water as drinks firms use billions of litres

**Lillian Perlmutter**  
Mexico City

**T**he water truck parks on a block, a 10-minute walk uphill from Rocio Vega Morales' house, for 15 minutes at most. She has no clue what time the pipa will arrive



## Mexico Drought

### Leads to Reputation Hit for Drinks

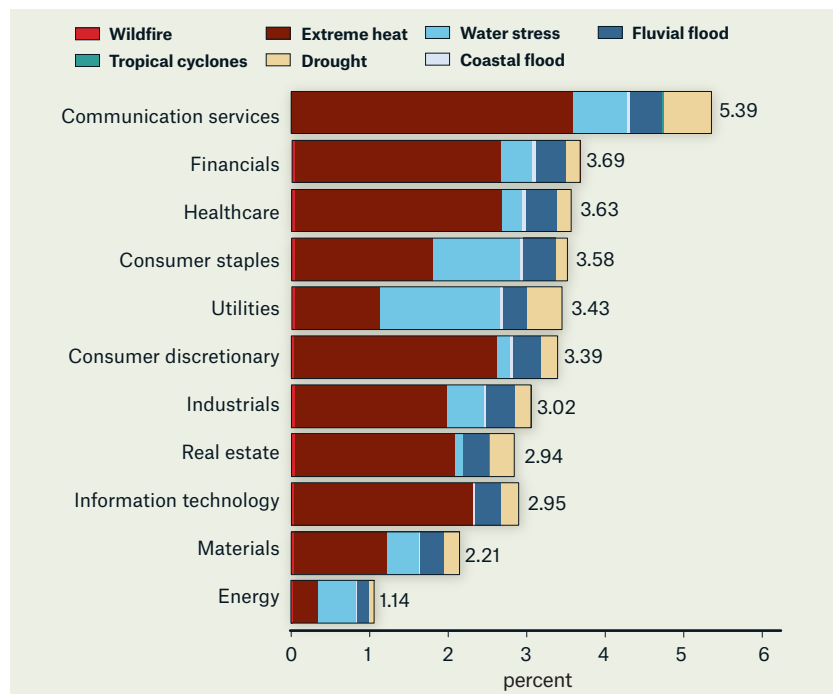
In 2022, community organizations in Mexico called for a global boycott of beverage companies that continued to extract groundwater even as the country struggled with a historic drought and parts of Mexico City were being supplied by water trucks. The global media headlines thrust beverage companies into the glare of international inquiry and protests popularized the slogan, "No es sequía, es saqueo" ("It's not drought, it's plunder").

That particular drought ended, but water availability has remained a critical issue into 2024.

Many of the companies named by the global press have extensive water sustainability strategies, with explicit goals for managing and reducing water use and detailed reporting. Many also have water stewardship programs, working with local communities to preserve watersheds and increase access to drinking water. In the face of sustained and severe drought, these commitments may go some way to protecting their reputations with more sophisticated stakeholders, but mainstream opinion may be less understanding. ♦

## FINANCIAL IMPACTS OF CLIMATE BY SECTOR

2050s: The average percentage of impacted assets owned by S&P 1200 companies.



A severe drought may wipe out an entire crop, while a nearby call center isn't affected. Each sector's risk profile will cause knock-on effects for financing, insurance and investing. The above analysis by S&P Global estimates the sector impacts in the 2050s.

GRAPHIC: PETER HOEY. PHOTOGRAPH: KATHY DEWITT/ALAMY STOCK PHOTO