

EDITORS' PICK

The World Is Not Prepared For The Sand And Dust Storms Crisis

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A sustainability scientist investigating complex human-nature systems

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People wearing masks walk on a street during a sandstorm in northeastern China's Jilin province on ...
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If you haven't done it already, it's time to add dust storms to your long list of the worst environmental crises of the 21st century that we are not prepared for.

Sand and dust storms occur when strong winds lift large amounts of sand and dust into the air, making it hard to see and breathe. Sept. 7 is the ⓘ BETA national Day of Clean Air for Blue Skies, a good opportunity to note the growing global threat of these storms and their severe negative effects on air quality, human health and the environment.

Most living Americans are too young to remember the Dust Bowl, a period of severe dust storms in the 1930s as the result of bad farming practices and droughts that damaged the ecology and agriculture of the American and Canadian prairies. Destructive storms of similar scale have not occurred frequently, but we should be worried, as dust storms are expanding globally in terms of number, strength and geographical coverage.

Why?

Because of deforestation, water mismanagement, bad land use, unsustainable farming, desertification and climate change.

Light dust particles do not recognize geographical and political borders. They can travel long distances, flying freely between states and even continents.

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Girls in U.S. West wearing masks during a dust storm in 1930's BETTMANN ARCHIVE

Imagine waking up to a sky darkened by a thick, choking haze of sand and dust combined with fine particles that are easily inhaled. This is not a horrifying fiction but a real experience for more than [500 million](#) people in India, 173 million in Pakistan, 62 million in Iran and 40 million in China, who frequently breathe in high levels of air polluted by sand and dust storms.

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The health impacts of sand and dust storms are devastating. Many of those exposed to dust — particularly children — suffer from respiratory problems, cardiovascular diseases and other health conditions exacerbated by toxic air pollution. Globally, **330 million people** are exposed to sand and dust storms on a daily basis. More than 80% of the entire populations of Turkmenistan, Pakistan, Uzbekistan, Tajikistan and Iran are exposed to medium and high levels of poor air quality due to sand and dust storms. In the Sahara region, dust storms trigger meningitis outbreaks, putting 350 million people at risk.

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In some parts of the world, the high salt content in the dust makes it toxic to plants, reducing crop yields and threatening food security. In 2021, a major sand and dust event in Northeast Asia killed **200,000 livestock**, destroyed 121 animal shelters in Mongolia and prompted urgent health advisories in South Korea.



An Iraqi man suffering from breathing issues receive treatment at an emergency ward at a hospital in ... [+] AFP VIA GETTY IMAGES

Dust storms are speeding up the melting of glaciers in the Himalayas and Tibetan Plateau, known as the “Third Pole.” These glaciers are a vital source of fresh water for over 1.3 billion people in Asia. As these glaciers melt faster due to dust and climate change, they threaten water supplies, farming, energy production and the risk of floods. Dust storms are harming the environment by degrading land and water resources, intensifying climate change effects and leaving ecosystems more vulnerable to disasters.

Sand and dust storms affect education by forcing school closures and disrupting the education of millions of children around the world. They also impact solar energy generation, reducing labor productivity and household income. These storms threaten the aviation industry, too. Some of today’s major international flight hubs, like Dubai, Istanbul and Doha, are exposed to massive sand and dust storms that reduce visibility and ground flights and disrupt businesses and international supply chains. In 2020, a single Saharan dust canceled 1,000 flights over the Canary Islands, costing over \$19 million in only three days. Australia’s Sydney Airport is another

internationally known victim of costly flight cancellations and backlogs due to dust storms.

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A large dust storm, or haboob, sweeps across downtown Phoenix, Arizona, on July 21, 2012 (AP ...
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Arizona, Texas, New Mexico, California, Nevada, Utah, Illinois, Oklahoma, Nebraska and Kansas are not the only U.S. states that increasingly witness sand and dust storms that cause road accidents, injuries and fatalities, extra health care costs and crop losses. Dust storms now occur in different parts of the U.S., costing the American taxpayers millions of dollars in road accidents, crop losses, health care and even fatalities. To date, Los Angeles has spent over **\$2.5 billion** to mitigate the dust caused by the dried-up Owens Lake.

In 2009, the cost of Red Dawn, a dust storm that passed over the eastern coast of Australia, was nearly **\$300 million** for the state of New South Wales. Annually, sand and dust storms cost the Middle East and North Africa over \$150 billion, a staggering **2.5%** of the region's GDP. In Asia-Pacific, the economic impact is estimated at **\$5.6 billion** per year. These big numbers represent shattered lives and livelihoods! Despite their massive impacts, we don't hear about this looming crisis as much as we should.

The global scope of this disaster makes it impossible to ignore or escape. No country, no region, no community is exempt. Yet, the world is far too ⓘ BETA prepared to deal with sand and dust storms. They are systematically neglected and hardly recognized in global climate, health and environmental conversations.

The international response to the growing disaster of sand and dust storms has been inadequate, and investments remain minimal. Right now, clean air efforts are chronically underfunded, attracting only 1% of international development finance. International efforts, such as the UN Coalition on Combating Sand and Dust Storms, are stepping up to raise awareness about this growing threat and enhance cooperation at global and regional levels. But much more work has to be done to equip different nations to mitigate sand and dust storms and minimize their health and economic impacts.

Earlier this year, on the occasion of the International Day of Combating Sand and Dust Storms (July 12), the UN member states declared 2025 to 2034 as the UN Decade of Combating Sand and Dust Storms. The declaration underscored the rising international concern over sand and dust storms and the urgent need to understand and monitor the sources and impacts of these storms, improve forecasting and early warning systems, facilitate information exchange, mobilize financial resources and enhance international cooperation to mitigate this global crisis.

The 16th session of the Conference of the Parties of the UN Convention to Combat Desertification, aka UNCCD COP16, which is taking place in Riyadh, Saudi Arabia, in December 2024, is a valuable opportunity for the UN member states to step up, turn declarations and words into action and develop a serious global agenda to prepare humanity for the unappreciated and silent crisis of sand and dust storms.

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