

# LEARNING INTERRUPTED: Global snapshot of climate-related school disruptions in 2024



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Climate shocks are disrupting children's education, putting their learning and their futures at risk.

A new UNICEF analysis on climate-related disruptions to schooling in 2024 reveals 10 key findings:

1. Globally, at least **242 million students** – from pre-primary to upper secondary education – have experienced school disruptions due to climate events in 2024.
2. At least **1 in 7 students** had their schooling disrupted due to climate hazards in 2024.
3. In 2024, **85 countries or territories** saw their schools affected by climate-related hazards, with 23 countries<sup>1</sup> experiencing multiple rounds of school disruptions.
4. At least **20 countries** had nationwide school disruptions in 2024 due to climate-induced disasters. Heatwaves, tropical cyclones, storms, and floods – all exacerbated by climate change – were causing nationwide school closures in 2024.
5. **74 per cent of the 242 million affected students are in low- and lower-middle-income countries**, with an average [Children's Climate Risk Index](#) (CCRI) score of 7 out of 10.
6. South Asia was the most affected region in 2024 with **128 million students** affected by climate-related school disruptions. East Asia and the Pacific region followed, impacting 50 million students.
7. In 2024, **heatwaves** were the most significant climate hazard worldwide to disrupt schooling, affecting an estimated 171 million students.
8. **April** saw the highest global climate-related school disruptions, with heatwaves as the leading hazard affecting at least 118 million children in Bangladesh, Cambodia, India, the Philippines, and Thailand.
9. **September** recorded the most frequent climate-related school disruptions. At a time of year when schools reopen in many parts of the world, at least 18 countries suspended classes. Typhoon Yagi affected 16 million children in East Asia and the Pacific, making it the top hazard in September.
10. In Africa, while over 107 million children are already out of school, climate-related disruptions in 2024 have put an additional **20 million children** at risk of dropping out.

<sup>1</sup> Afghanistan, Bangladesh, Bolivia (Plurinational State of), Brazil, Chile, China, Colombia, Comoros, Ecuador, Ethiopia, Honduras, India, Indonesia, Mauritius, North Macedonia, Pakistan, Papua New Guinea, Peru, the Philippines, Republic of Moldova, Romania, South Sudan and Thailand.

**Climate change** is deepening the [global learning crisis](#) and threatening children's ability to learn. Right now, an estimated two thirds of children around the world cannot read with comprehension by age 10. Climate hazards are exacerbating this reality.

Nearly half the world's children – approximately 1 billion children – live in countries with extremely high risks of climate and environmental shocks.<sup>i</sup>

A new UNICEF analysis finds that climate-induced hazards disrupted schooling for at least 242 million students worldwide in 2024. This is a conservative estimate due to data limitations and does not account for the broader, secondary impacts of climate-induced hazards.

Climate change disrupts education at all levels, having a devastating impact on children, communities, and societies. Extreme climate events shatter education systems and hinder teaching, exacerbating the global learning crisis. At the community level, climate hazards damage school infrastructure, often forcing schools to serve as shelters for displaced families, further limiting access to education. Individually, children bear the heaviest burden, facing not only disrupted learning but also increased risks of physical harm and mental health issues. These challenges deprive children of their right to learn, and place added stress on parents, caregivers and teachers, further deepening vulnerabilities in communities impacted by conflict, displacement and migration.

Education is one of the most frequently disrupted services due to climate-related events, yet it is often overlooked in policy discussions, despite its crucial role in climate change mitigation and adaptation. Schools and education systems are ill-equipped to protect students from the impacts of climate change, particularly in fragile contexts, and climate finance investments in education remain strikingly low.

Investing in climate-resilient education systems pays dividends for children, societies, and economies for generations to come – with proven solutions, countries can take success stories to scale. Every effort must be made to ensure that schools can withstand climate shocks, particularly when they are escalating in frequency and intensity. This means ensuring that school buildings are safe, children have remote learning options if schools must close, and teachers are equipped to teach about climate change and disaster risk reduction.

This snapshot presents an analysis of country-specific school disruptions caused by climate hazards in 85 countries from January to December 2024. This analysis defines 'school disruption' as any event that leads to a suspension of regular school activities. This includes school closures, changes in school timetables that result in shortened schooling hours, advancement of the start of vacation (preponing), delay in the reopening of schools (postponing), or the destruction of schools or classrooms due to climate-related hazards.

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“The world is grappling with two intertwined challenges – climate change and educational disruptions – that reinforce each other. Addressing both simultaneously is crucial.”

- Pia Rebello Britto,  
UNICEF Global Director of  
Education and Adolescent  
Development





# Tracking climate-related school disruptions



**Heatwaves** caused the most disruptions, with over 118 million students impacted in April alone, followed by substantial disruptions in May, June, and July. Hot temperatures and reduced hydration levels [can hinder children's ability to focus and retain information](#), ultimately affecting their academic performance. In April, nationwide school disruptions in Bangladesh, Cambodia, and the Philippines disrupted schooling for over 63 million children. In the East Asia and the Pacific region, countries such as Malaysia and Thailand reported heatwave-induced school closures, though data on the exact number of students affected are unavailable. For example, Thailand's Basic Education Commission advised halting in-person teaching in April to protect students and teachers from heat stroke risks, highlighting the significant and growing impact of heatwaves on education in the region.<sup>ii</sup>

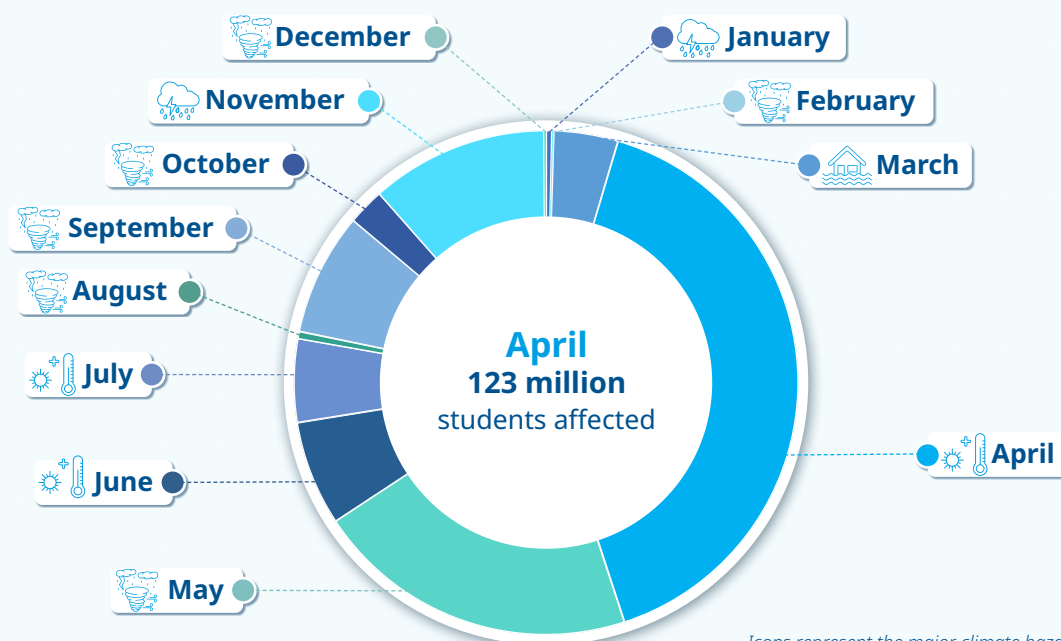


**Tropical cyclones** affected 18 million students in September, with frequent occurrences in subsequent months, notably in October and December. Storms and floods also played a significant role in school disruptions, particularly in March and November.



**Droughts**, often linked to El Niño conditions, are having long-term impacts on children's education. In 2024, countries in Southern Africa experienced the worst drought in over 100 years due to the impacts of El Niño.<sup>iii</sup> In Zimbabwe, prolonged drought impacted schooling for 1.8 million children in 2024. While droughts may not lead to immediate school closures or always be reflected in monthly data, their prolonged impact on student attendance, enrollment, and learning outcomes becomes apparent over time.

**Figure 1.** Number of students affected by climate-related school disruptions in 2024, by month.



Icons represent the major climate hazard causing the largest school disruption during each month in 2024.



**FLOOD**



**TROPICAL CYCLONE**



**STORM**



**HEATWAVE**

Note: The 12-month total, when summed by month, exceeds the 2024 global figure of 242 million due to the removal of duplicate counts for students affected within specific countries in the global total.

## Climate hazards and impact on children's schooling: A regional perspective

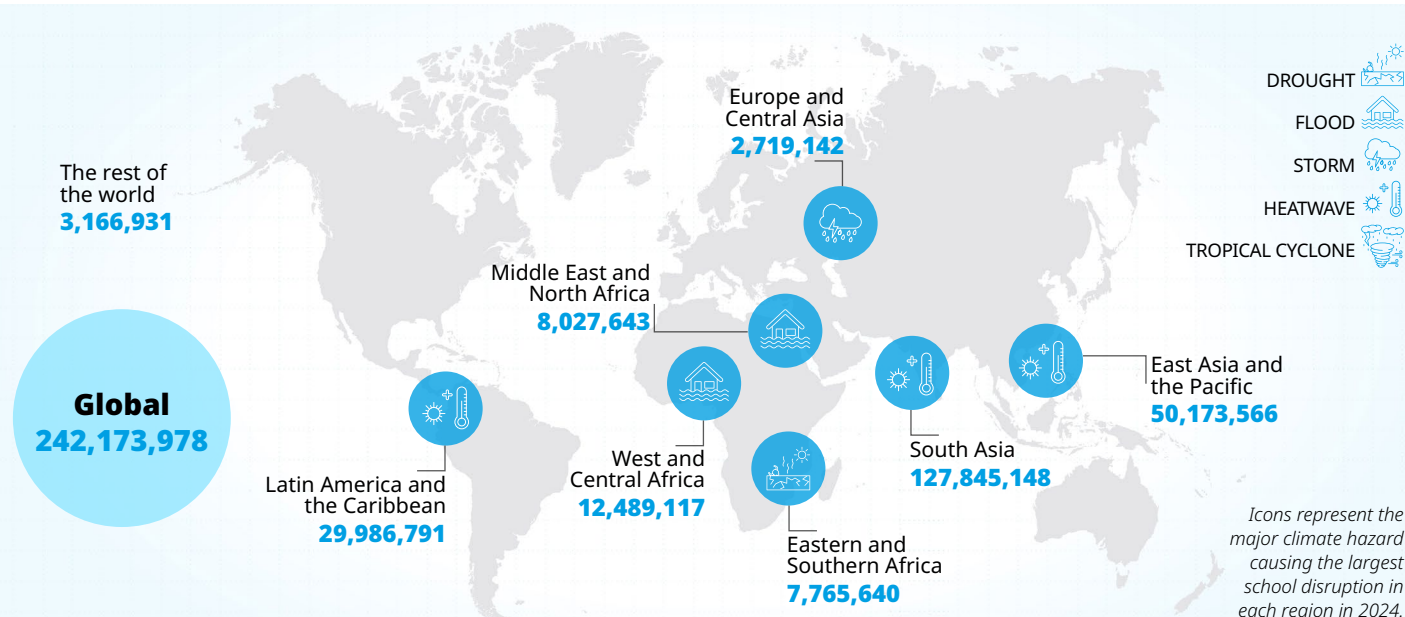
In 2024, climate-related school disruptions varied significantly across regions, each facing unique challenges due to specific climate hazards. Figure 2 illustrates the distribution of affected students by region, showing the widespread impact of climate events on education.

**MAGNITUDE** In South Asia, 128 million students are affected by climate-related school disruptions in 2024, with heatwave as the leading climate hazard in terms of both frequency and impact. In East Asia and the Pacific, 50 million students experienced school disruptions due to climate hazards, with heatwaves and tropical cyclones being the leading causes. Latin America and the Caribbean saw significant school disruptions due to a combination of heatwaves, floods, storms, and cyclones, impacting 30 million students. The Middle East and North Africa experienced school disruptions caused by storms and floods, affecting more than 8 million students. Meanwhile, West and Central Africa and Eastern and Southern Africa primarily experienced flood-related disruptions, impacting 12 million and 8 million students, respectively.

In South Asia and Eastern Africa climate events are associated with increased rates of child marriage, permanently disrupting education for millions of adolescent girls.<sup>iv, v, vi, viii</sup> In Ethiopia and Kenya, during 2021, child marriage increased by more than 90 per cent across regions worst hit by the drought, driving girls out of school.<sup>viii</sup> In some countries, hard-won progress in eliminating this harmful practice is seeing reversals, with life-long consequences for girls and their education.

**FREQUENCY** While regions like South Asia are particularly prone to heatwaves, Latin America and the Caribbean saw a higher frequency of climate-related school disruptions, with 27 observations in 2024. For example, Hurricane Beryl, one of the top hazards in the region, affected Barbados, the Cayman Islands, the Dominican Republic, Grenada, Haiti, Jamaica, Mexico, Saint Lucia, Saint-Vincent and the Grenadines, and Trinidad and Tobago, causing widespread infrastructure and electricity damage. Although not every country in the region has available data on school disruptions, the frequency of such events remains a significant challenge.

**Figure 2.** Number of students affected by climate-related school disruptions in 2024, by UNICEF programme region.



Source: UNICEF 2025

This map does not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers.

## UNICEF's work in climate change and education

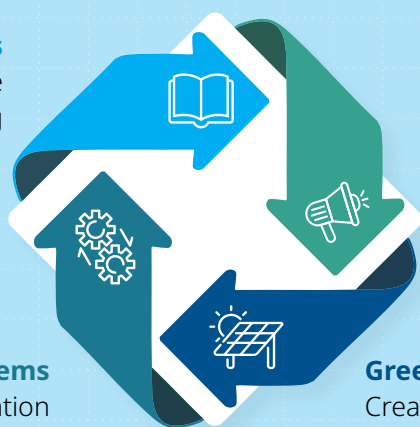
UNICEF is deeply involved in mitigating the effects of climate change on children's education, working closely with Ministries of Education and communities to build climate-resilient schools and prepare children and young people with green skills for climate adaptation and climate mitigation. Our approach includes four strategic pillars:

### Greening learning and skills

Improving access to climate education and green jobs training

### Greening capacities of systems

Supporting Ministries of Education to build system-wide resilience and integrate climate risk into planning



### Youth-led climate advocacy and action

Empowering young people to participate in climate solutions

### Greener and safer learning facilities

Creating climate-resistant school infrastructure, solarizing schools, and implementing disaster risk reduction strategies

This work involves collaborations with governments, civil society, the private sector, as well as teachers and young people. UNICEF plays an active role in global climate policy discussions, including at the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP), championing the integration of children's education into workstreams such as Adaptation, Just Transition and Loss and Damage. Following mandates of including children's education into the work under the [Global Goal for Adaptation](#) at COP28 and COP29, UNICEF is doubling down its work and advocacy on:

- ✓ Informing National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs) to integrate education;
- ✓ Strengthening capacities of Ministries of Education through evidence generation, cost-effective solutions for mainstreaming climate education, and development of climate-resilient infrastructure; and
- ✓ Contributing expertise on the development of cross-cutting indicators related to children's education under the [United Arab Emirates \(UAE\)-Belém Work Programme](#).

An overall key focus remains on elevating the voices of young people and teachers, ensuring that climate action plans reflect their needs and perspectives, with an emphasis on gender responsiveness and inclusivity for children with disabilities.

## Promising practices and scalable solutions

### India: Greening learning and building teacher capacity

India is extremely vulnerable to the adverse impacts of climate change, ranking 26 out of 163 countries in the [UNICEF Children's Climate Risk Index](#) of 2021. Fast-onset hazards such as flooding, landslides and cyclones have repeatedly caused destruction to schools while environmental stressors like extreme heat and air pollution are harming children's health and hindering their school attendance and learning outcomes. With UNICEF's advocacy, the government has integrated elements of climate change in the National Curriculum Framework – a national guide to developing state curriculum, textbook content and teaching learning practices. At the state level, UNICEF is working with the government to implement Comprehensive School Safety Programmes (CSSP) across 12 states. These programmes integrate elements of climate change, focusing on safe school learning environments and empowering children as agents of change. In 2024 alone, over 121,000 educators were trained under these programmes. To further enhance teachers' capacity in climate change education, a national teacher training module developed with UNICEF's support, is set to be finalized in March 2025.



### Mozambique: Building climate-resilient schools

In Mozambique, intense and frequent cyclones, such as Chido and Freddy, have severely impacted education. Approximately 40 per cent of school infrastructure is built with substandard materials, making it particularly vulnerable to climate-related hazards. This vulnerability was starkly illustrated during the recent cyclones in 2023 and 2024, which caused significant damages across different regions.

Cyclone Chido, in December 2024, resulted in the damage or destruction of at least 1,126 classrooms in 250 schools, affecting the return to school of around 110,000 students.<sup>2</sup> As winds reached speeds of 260 kilometres per hour in some areas, climate-resilient classrooms, have sustained damages.<sup>ix</sup> In response, UNICEF is expediting efforts to provide temporary learning spaces and support minor repairs in partially damaged schools, ensuring children have safe schools to return to for the 2025 school year. Additionally, UNICEF collaborates with partners to constantly innovate and adapt resilient and sustainable infrastructure solutions in response to the increasingly severe impact of climate change. However, enhancing resilience

<sup>2</sup> Final data may change as schools were closed for holidays during the cyclone and data collection is still ongoing.



presents cost challenges, as it raises unit costs. Lessons learned from Cyclones Freddy and Chido highlight the importance of investing in resilient infrastructure, demonstrating that while resilient classrooms withstand climate impacts better, further enhancements, often costly, are necessary to endure extreme conditions.



## Viet Nam: Comprehensive approach to climate-smart education and greening capacities

Children in Viet Nam are among the most vulnerable globally to the impacts of climate change, with [99.5 per cent](#) experiencing three or more types of climate shocks, hazards or stress. UNICEF is taking comprehensive action to ensure learning environments are climate and disaster resilient and that children are empowered with climate knowledge and green skills. By working across sectors, UNICEF not only supports children's learning in its disaster response but also focuses on building long-term resilience in climate-smart education, and school and community resilience. When Typhoon Yagi hit, a total of [2,210 schools were affected](#), with eight schools completely destroyed or heavily damaged, and 1,866 schools partially damaged. UNICEF has provided Early Childhood Education kits to preschools, learning kits to primary students and sets of textbooks, ensuring learning continuity for an estimated 22,225 affected children. To build resilience and




green capacities, UNICEF is collaborating with the Viet Nam ministries of Education and Training (MoET) and Rural Development to explore the feasibility of solarization in schools, having partnered earlier with the Global Green Growth Institute and the MoET on an analysis exploring the feasibility of a public-private clean energy financing mechanism for rooftop solar energy in schools. UNICEF and the MoET have also collaborated to develop a National Climate-Smart Education Strategic Framework, which is currently being piloted in select provinces and has the potential to reach 23 million children and 1.4 million teachers across 50,000 schools in 63 provinces when implemented at scale.

**The climate crisis is a child's right crisis – one that is threatening their right to education. Children's needs, perspectives and rights must be considered in climate policy, action and investment at all levels.**



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## UNICEF is calling on governments and partners to:

-  **Protect children** by explicitly integrating climate change education in education systems and addressing the impacts of climate change on education in national policies and plans including countries' Nationally Determined Contributions, National Adaptation Plans and Education Sector Plans.
-  **Increase financing** to improve the climate resiliency of the education sector, including investment in scaling up proven and promising solutions focused on:
  - Climate-resilient schools for greener and safer learning.
  - Climate-resilient education systems that deliberately mainstream climate in national school curricula, and in teacher development programmes and policies.
  - Youth-led climate action that builds resilience at local level, engaging schools and community leaders.
-  **Strengthen systemic and robust data collection** on the impacts of climate events on education and learning disruptions. This should include establishing climate, environment and school closure monitoring systems at the country level.

## Methodology

This analysis focuses on students across three educational levels: pre-primary, primary and secondary. This study defines 'school disruption' as any event that leads to a suspension of regular school activities. This includes school closures, changes in school timetables that result in shortened schooling hours, advancement of the start of vacation (preponing), delay in the reopening of schools (postponing), or the destruction of schools or classrooms due to climate-related hazards. Climate hazards considered in this analysis include floods, storms, wildfires, heatwaves, cold waves, tropical cyclones and droughts.<sup>3</sup>

<sup>3</sup> Climate hazard categories of cold waves, heatwaves, wildfires and storms were included in this analysis based on research published in the [National Bureau of Economic Research](#).



Non-climate-centered hazards or geophysical disasters including earthquakes, tsunamis, volcanic activities and mass movements have not been included in this analysis. In addition, this analysis presents a conservative figure because it does not account for the secondary impacts of climate-induced hazards, such as air pollution caused by wildfires or droughts, geopolitical tensions arising from competition for water, or epidemics resulting from reduced access to clean water due to floods or droughts. Countries impacted by climate hazards in 2024 were identified by consulting the Emergency Events Database (EM-DAT) and the Assessment Capacities Project (ACAPS) archive. A total of 181 climate events were recorded between 1 January 2024 and 31 December 2024. Within these occurrences, school disruptions were verified from situation reports and press releases by the United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA), ReliefWeb, along with additional media outlets. This search identified 85 countries and 119 climate hazards that led to school disruptions.

Among these, 50 countries reported exact numbers of students affected by 56 climate hazards. Key data sources include UNICEF regional offices and country offices, UNICEF humanitarian situation reports, UN OCHA flash updates, Save the Children, Education Cluster, ministries of education, United Nations Population Fund (UNFPA), and United Nations High Commissioner for Refugees (UNHCR). In 63 cases where exact student data was unavailable, the analysis relied on the UNESCO Institute for Statistics (UIS) database for the latest enrollment figures, supplemented by the World Bank population data at the subnational level or, where available, country-specific census and statistical reports supported by governments.

The search was conducted in English, and the language limitations may have led to an underestimation of affected students in countries with no data available in English. Key assumptions include the proportional impact of climate hazards on both public and private schools. In addition, student distribution in disaster-affected areas is assumed to align with population distribution at the corresponding administrative level within the nation. Detailed data will be available on request.

To avoid double-counting, the following measures were applied for countries that experienced multiple climate-related school disruptions in 2024. If a single climate event led to nationwide school disruptions affecting all students in the country, the total number of students affected is based on the most recent available enrollment data from UIS. This approach applies to six countries: Afghanistan, Bangladesh, Mauritius, North Macedonia, the Philippines and South Sudan. For countries such as Ethiopia and Indonesia, where no evidence of overlapping disaster zones was found and the sum of students affected by multiple climate hazards does not exceed total enrollment numbers, multiple data entries are retained. After accounting for double-counting, this study encompasses data from 85 countries or territories and 106 climate-related school disruptions.



## ANNEX 1

# Number of students affected by climate-related school disruptions in 2024 by country and territory and major climate hazard

COUNTRY AND TERRITORY	Number of students affected by climate-related school disruptions in 2024	Major climate hazard causing the largest school disruption
<b>Afghanistan</b>	10,914,000	Heatwave
<b>Armenia</b>	600	Flood
<b>Austria</b>	258,981	Flood
<b>Azerbaijan</b>	3,500	Flood
<b>Bangladesh</b>	35,378,813	Heatwave
<b>Belize</b>	89,178	Storm
<b>Bolivia (Plurinational State of)</b>	341,846	Wildfire
<b>Bosnia and Herzegovina</b>	880	Flood
<b>Brazil</b>	1,178,435	Flood
<b>Burundi</b>	15,660	Flood
<b>Cambodia</b>	3,385,799	Heatwave
<b>Cameroon</b>	103,906	Flood
<b>Chad</b>	893,780	Flood
<b>Chile</b>	2,738,467	Storm
<b>China<sup>4</sup></b>	19,379,106	Tropical cyclone
<b>Colombia</b>	4,298,929	Drought
<b>Comoros (the)</b>	10,147	Tropical cyclone
<b>Costa Rica</b>	1,124,379	Storm
<b>Croatia</b>	452,318	Heatwave
<b>Cuba</b>	1,600,000	Tropical cyclone
<b>Czechia</b>	305,936	Flood
<b>Democratic Republic of the Congo</b>	200,000	Flood
<b>Dominican Republic</b>	76,821	Flood
<b>Ecuador</b>	5,436	Storm
<b>El Salvador</b>	1,297,360	Storm
<b>Ethiopia</b>	1,233,655	Drought
<b>France</b>	217,346	Flood

<sup>4</sup> In 2024, China experienced multiple climate-related school disruptions. Disruptions were documented in various provinces and prefecture-level cities, but it is important to note that the data collected is based on a subnational level and does not fully represent the entire country.

<b>Germany</b>	17,756	Flood
<b>Georgia</b>	6,551	Flood, Storm
<b>Greece</b>	88,287	Heatwave
<b>Grenada</b>	24,981	Tropical cyclone
<b>Guam</b>	25,648	Storm
<b>Guatemala</b>	2,302,939	Storm
<b>Honduras</b>	79,821	Storm
<b>India<sup>5</sup></b>	54,784,029	Heatwave
<b>Indonesia</b>	59,037	Flood
<b>Italy</b>	916,325	Flood, Storm
<b>Jamaica</b>	487,339	Storm
<b>Japan</b>	1,007,142	Tropical cyclone
<b>Kazakhstan</b>	832,000	Flood
<b>Kenya</b>	2,262,392	Flood
<b>Lao People's Democratic Republic (the)</b>	20,000	Tropical cyclone
<b>Madagascar</b>	59,156	Tropical cyclone
<b>Malawi</b>	18,797	Flood
<b>Mali</b>	4,443,497	Flood
<b>Marshall Islands (the)</b>	1,000	Drought
<b>Mauritius</b>	229,372	Tropical cyclone
<b>Mexico<sup>6</sup></b>	13,100,000	Heatwave
<b>Middle East and North Africa Region</b>	8,027,643	Flood
<b>Mongolia</b>	80,215	Storm
<b>Mozambique</b>	109,793	Tropical cyclone
<b>Myanmar</b>	300,000	Tropical cyclone
<b>Namibia</b>	703	Drought
<b>Nepal</b>	23,000	Flood
<b>New Zealand</b>	5,117	Storm
<b>Niger (the)</b>	4,627,934	Flood
<b>Nigeria</b>	2,200,000	Flood
<b>North Macedonia</b>	280,541	Heatwave

<sup>5</sup> This study identifies three climate-related hazards that led to school disruptions across various states in India in 2024. It is important to note that the search was conducted in English, which may have limited the inclusion of affected regions where data was not available in English. The analysis was further validated using official orders regarding school closures, and the number of students impacted by climate-induced school disruptions in 2024 was estimated based on government-provided enrollment data from the 2023-24 academic year at the state level and from 2021-22 at the district level, the most recent publicly available data. Additionally, the collected data reflects a subnational level of analysis, which means it does not fully capture the extent of disruptions across the entire country.

<sup>6</sup> This study imputes the 2023 Mexico heatwave figure based on state-level reports indicating that similar methods were employed in 2024, with the heatwave in 2024 being even more severe than that of 2023.



<b>Pakistan</b>	26,230,000	Heatwave
<b>Panama</b>	894,205	Flood
<b>Papua New Guinea</b>	77,938	Flood
<b>Peru</b>	27,304	Drought
<b>Philippines (the)</b>	24,195,388	Heatwave
<b>Poland</b>	144,700	Storm, Flood
<b>Portugal</b>	16,093	Wildfire
<b>Republic of Moldova</b>	250,700	Storm
<b>Romania</b>	703,765	Storm
<b>Russian Federation (the)</b>	9,515	Flood
<b>Saint Lucia</b>	30,041	Tropical cyclone
<b>Saint Vincent and the Grenadines</b>	5,920	Tropical cyclone
<b>Senegal</b>	20,000	Flood
<b>Serbia</b>	100,000	Heatwave
<b>Somalia</b>	37,000	Flood
<b>South Africa</b>	11,337	Flood
<b>South Sudan</b>	2,200,000	Heatwave
<b>Spain</b>	13,000	Flood
<b>Sri Lanka</b>	515,306	Flood
<b>Thailand</b>	25,083	Tropical cyclone
<b>Uganda</b>	4,000	Flood
<b>United Republic of Tanzania (the)</b>	3,000	Flood
<b>Uruguay</b>	283,390	Flood
<b>Viet Nam</b>	2,650,000	Tropical cyclone
<b>Zimbabwe</b>	1,800,000	Drought
<b>Global</b>	<b>242,173,978</b>	<b>Heatwave</b>

<sup>i</sup> UNICEF, [The climate crisis is a child rights crisis: Introducing the Children's Climate Risk Index](#), UNICEF, New York, 19 August 2021.

<sup>ii</sup> UNICEF EAPRO, [2024 Thailand Climate Impacts on Education Situation Overview](#), UNICEF East Asia Pacific Regional Office, 2024.

<sup>iii</sup> United Nations Office for the Coordination of Humanitarian Affairs, [Southern Africa: El Niño Regional Humanitarian Overview](#), UN OCHA, September 2024.

<sup>iv</sup> UNICEF, [Global polycrisis creating uphill battle to end child marriage](#), UNICEF, 2 May 2023.

<sup>v</sup> Haroon Janjua, [Extreme weather drives surge in Pakistan child marriages](#), Nature and Environment, 3 September 2024.

<sup>vi</sup> International Rescue Committee, [Bangladesh: IRC study reveals a staggering 39% surge in child marriage due to climate change](#), 6 December 2023.

<sup>vii</sup> Tribune India, [Extreme weather events linked to higher child marriage: Study](#), 23 December 2024.

<sup>viii</sup> UNICEF, [Child marriage on the rise in Horn of Africa as drought crisis intensifies](#), UNICEF, 29 June 2022.

<sup>ix</sup> UNICEF, [Mozambique Flash Update No. 3 \(Cyclones Chido and Dikeledi\)](#), UNICEF, 13 January 2025.