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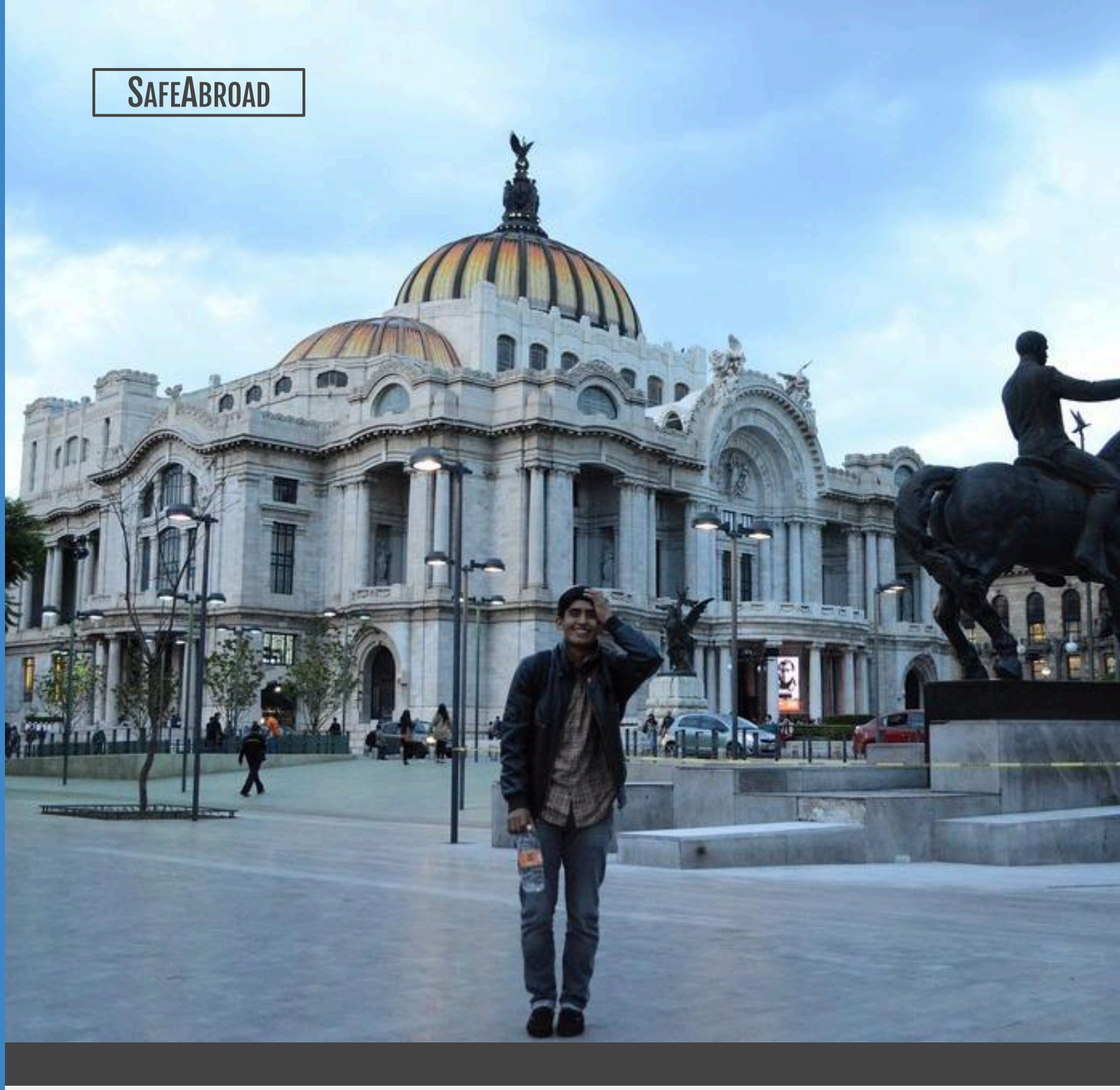

SafeAbroad Forecast Report

MEXICO DROUGHTS AND THE ONGOING WATER CRISIS

SAFETY IMPLICATIONS FOR INTERNATIONAL EDUCATION PROGRAMS

Overview

Cities in Mexico are at risk of running out of clean drinking water due to low-capacity reservoirs and diminished aquifers caused by droughts during the El Niño season.[1] The water crisis will likely persist in the coming months due to a lack of rainfall; however, Mexico's government has announced intentions to repair and create water infrastructure to help mitigate the water shortage, which will affect water flow throughout the cities.[2] Demonstrations and roadblocks in response to the ongoing water crisis have caused travel disruptions throughout several cities.[3]

Key Takeaways

1. **The effects of the water crisis are worst in the highly populated capital of Mexico City, but other cities have been impacted by similar water shortages.** Increased temperatures and decreased rainfall have caused similar water shortages in other major cities in Mexico, including Oaxaca and Xalapa, forecasting limited water distribution throughout the nation at least through the El Niño season.

2. **The Mexican government has taken action to reduce the severity of the water crisis.** Pipes that service affected cities are being updated and replaced, causing disruptions in water flow and supply for short periods. During these times, certain areas of the city receive water through alternate means like water trucks.

3. **Water crisis protests are causing travel disruptions nationwide, and often involve road blockages.** The recent increase in protests has resulted in sporadic road closures and blockages in the city. Authorities disperse the blockades when necessary; however, much of the police force has joined the protests and helped demonstration efforts.

Background

El Niño is the warm season in Mexico caused by temperature changes in the Gulf of Mexico and has caused North and South America to experience higher rates of droughts and increased temperatures over the past few years.[4] While this denotes a wet season in certain areas of Mexico, others experience more frequent droughts leaving several cities more vulnerable to water shortages. Certain Mexican cities have been experiencing a decrease in water levels, and the water within some reservoirs is evaporating faster than it can replenish due to rising temperatures across the country and a lack of rainfall.[5] 30 of Mexico's 32 states are experiencing water

[1] https://www.theenergymix.com/water-supplies-face-day-zero-as-drought-heat-dome-hit-mexico-city-and-bogota/

[2] https://mexiconewsdaily.com/news/mexico-citys-water-supply-from-cutzamala-shut-off/

[3] https://apnews.com/article/mexico-city-water-crisis-reservoir-complaints-6f8b2189a3935468e5f61acf23f70711

[4] https://wmo.int/news/media-centre/el-nino-and-climate-change-impacts-slam-latin-america-and-caribbean-2023

[5] https://www.wri.org/insights/impacts-el-nino-beyond-water

shortages. 40% to 80% of Mexico's population is predicted to live in high water stress by 2050.

Effects on Major Mexican Cities

While the capital is experiencing the harshest water crisis, water scarcity throughout Mexico is a quickly emerging issue in other cities and is expected to worsen without more adequate intervention.

Mexico City | **The water supply shortage is majorly due to limited precipitation in the Cutzamala basin in recent years.**[6] Mexico City relies on the Cutzamala aqueduct system for around 25% of its water supply; however, as of June 27, the system is operating at only 26% of its capacity even after the increased rainfall from Tropical Storm Alberto.[7] In April 2024, citizens of Mexico City began receiving contaminated water in their homes and businesses.[8] Many sources reported that tap water in some areas of Mexico City smelled of sewage and had a dark brown color, leaving it undrinkable and unusable for many household activities. Additionally, wastewater is often left untreated and discharged into rivers and lakes, tainting potential alternative water sources.[9] The aging Cutzamala water system also loses about 40% of its running water due to pipe leaks.[10] This system services Mexico City, with the majority of the water supply, around 65%, coming from the aquifers beneath the city.[11] These aquifers are drying up and not being replenished, causing the city to sink and water supplies to run low.[12, 13]

Oaxaca City | **Decreased rainfall is driving the water crisis in Oaxaca.** Oaxaca City requires 1,200 liters per second of water, but can currently only get around 400 liters per second at most.[14] The wet season has not been producing enough water, and the region goes 6-8 months without rain during the dry season. Due to this shortage, people are receiving water every 30 to 45 days, which does not provide enough water to last until they receive it next.[15] This forces residents to buy water from trucks, which is costly and only available to those who can afford it. Increased water consumption from tourism also contributes to the water crisis. Oaxaca loses 40% of its water to leaks due to the age of the infrastructure system. Currently, the pipework in Oaxaca is being updated, which began in May 2024 and will conclude in February 2025.[16]

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6 https://desdemonadespair.net/2024/05/mexico-citys-water-day-zero-may-come-even-for-the-wealthiest-residents-no-one-could-have-foreseen-this-would-happen-in-the-city/

7 https://www.cnn.com/2024/02/25/climate/mexico-city-water-crisis-climate-intl/index.html

8 https://undergroundinfrastructure.com/news/2024/april/fire-in-mexico-citys-storm-drain-highlights-underground-infrastructure-strain-amid-water-shortage

9 https://pulitzercenter.org/stories/search-mexico-citys-lost-water

10 https://www.usatoday.com/story/travel/news/2024/03/06/mexico-city-water-tourism/72757863007/

11 https://www.scientificamerican.com/article/0424--kinard-mexico-city-run-out-of-water/

12 https://abcnews.go.com/International/mexico-city-residents-faced-water-crisis-resort-drastic/story?id=111472771

13 https://www.nbcnews.com/science/science-news/mexico-citys-21-million-residents-are-facing-severe-water-shortage-rcna140669

14 https://www.bnamericas.com/en/news/mexico-studying-water-supply-solutions-for-oaxaca

15 https://www.globalgiving.org/projects/oaxacan-families-fighting-against-the-water-crisis/

16 https://gooaxaca.com/oaxaca-city-water-shortage/

Xalapa | Xalapa has been facing water insecurity since October 2023 due to deforestation around the city's main sources of water, causing pollution from farm runoff to contaminate the water. Xalapa's water comes from several different river basins, including the Pixquiac, the Huitzilapan, and the Seven Springs, which have been losing water volume over the last few years.[17] This, and the loss of 74,000 acres of mesophyll mountain forest that played a key role in the natural water cycle, have contributed significantly to Xalapa's crisis. Water supplies are often insufficient even after deliveries. Water is often stored in any containers that people have, leaving it still and creating a breeding ground for mosquitoes and dengue fever.

Mexican Government Response

The Mexican government is actively responding to the water crisis with specific approaches that address both immediate and long-term challenges.

Repairing and Creating Infrastructure | The Mexican government is drilling new wells and repairing existing ones to increase water extraction. On June 19, water authorities announced repair work for leaking pipes in Mexico City, which will likely continue in the coming months.[18] Efforts to reduce water loss from leaks in the cities' aging infrastructure are ongoing, and while these processes are essential for long-term sustainability, the maintenance work has resulted in temporary water supply disruptions.[19] The Oaxaca government has initiated several projects to alleviate the crisis, but the majority have been left unfinished, only worsening the effects of the crisis.[20] The crisis in Xalapa is centered around pollution of water sources rather than the effects of El Niño, therefore recovery efforts have been left in the hands of non-governmental organizations (NGOs), with no focus on developing the city's infrastructure.

Alternative Water Deployment | In areas with the most severe shortages, water trucks and cisterns are deployed to supply fresh, clean water to homes and businesses. With local water sources at low levels, officials in major cities bring in water from outside areas. Many businesses are receiving water by tanker trucks, including hospitals and fire departments, which are expensive and in short supply.[12] Many restaurants and hotels require water deliveries all year round, and more often during the dry season. It´s common for hotels to ask guests to be water-conscious and understanding when towels and sheets are not changed daily.[21] Although water deliveries alleviate the effects of the water crisis in the short term, these actions can lead to irregular water availability in certain areas.[22]

Water Allocation Systems | Authorities have implemented water rationing by reducing flow from reservoirs and proposing projects to extract water from dams. As of June 27, the National

[17] https://news.mongabay.com/2024/01/in-mexico-xalapas-chronic-water-scarcity-reflects-a-deepening-national-crisis/

[18] https://mexiconewsdaily.com/news/mexico-citys-water-supply-from-cutzamala-shut-off/

[19] https://www.ecowatch.com/mexico-city-water-crisis-day-zero.html

[20] https://avispa.org/flooded-homes-and-fraudulent-businesses-the-scandalous-story-of-potable-water-in-oaxaca/

[21] https://theeyehuatulco.com/2013/05/01/water-shortages-in-oaxaca/

[22] https://www.aljazeera.com/features/2024/5/11/mexico-city-is-sinking-running-out-of-water-how-can-it-be-saved

Water Commission (Conagua) decreased the water flow from the Cutzamala system from eight cubic meters per second to six cubic meters per second to ensure that water remains flowing to Mexico City.[23] This has already led to intermittent water supply in many neighborhoods, hotels, restaurants, and other urban infrastructure, with the Mexican government urging residents and businesses to conserve water.[24]

In Oaxaca, the city's government has spearheaded an engineering project to extract water from the Paso Ancho dam in the Mixteca region, but few additional interventions have been implemented to alleviate the issue in the short term.[25] A municipal water system delivers water stored in large rooftop water tanks called tinacos or underground cisterns for businesses and fortunate households to have continual access to water throughout the month; however, the delivery service is expensive and irregular, so residents without access to adequate water storage still struggle greatly with access to fresh water.

The Xalapa government has done little to address the water crisis, as the scarcity is more a result of deforestation that causes pollution in the Pixquic basin than El Niño. The city instead relies on efforts from small NGOs that vie for funding from the municipal government that focus on urging farmers to preserve and manage forestlands to reduce the effects of pollution;[26] however, the city has little to no water allocation systems to manage the water crisis.

Civil Unrest

Mexican residents have been protesting in major cities against the water shortage and poor water quality, and the government's failure to properly address the issue in the long term.

These protests often include road blockages, affecting travel in major throughways. While police and security forces have intervened to disperse these blockages, they have also begun participating in protests since May due to the widespread impacts of the water crisis, claiming they had not had water for over a week and their bathrooms were in an unusable condition.[27] In some municipalities, the government's initial response to the crisis was advising citizens to conserve water, but not enforcing the same demands of industrial and agricultural users that source from underground aquifers.[28] Government efforts to curb demand that disproportionally affects residents over businesses will likely lead to an increased rate of demonstrations, especially as the summer continues, droughts persist, and reservoirs lose more volume.[29]

Inadequate government response to the crisis has caused social unrest in urban centers nationwide, with roadblocks laid in protest and neighborhood disputes becoming commonplace. Demonstrations are typically focused on local authorities such as water regulators and government bodies, and occasionally, specific companies; however, the demonstrations, while generally relatively small and peaceful, do vary in size and often cause moderate to severe travel

[23] https://mexiconewsdaily.com/news/mexico-city-reservoir/
[24] https://gca.org/this-is-how-mexico-city-is-tackling-its-water-challenges/
[25] https://bittmanproject.com/mexican-cities-and-states-could-run-out-of-water-whats-the-solution/
[26] https://successfulsocieties.princeton.edu/sites/g/files/toruqf5601/files/Mexico_ToU.pdf
[27] https://apnews.com/article/mexico-heatwave-drought-protests-monkey-deaths-6310778f139ef786a8c70301fb340bd5
[28] https://dialogue.earth/en/uncategorized/60151-drought-mexico-water-shortage-social-unrest/
[29] https://www.ktvh.com/protests-erupt-as-mexico-city-could-run-out-of-water-this-summer

disruptions in cities. There have been protests in all 32 of Mexico's states over water-related issues, but the majority and the largest demonstrations are centered in the capital, Mexico City.[30]

Thousands have taken to the streets to protest water outages, often blocking traffic and causing major disruptions in highly trafficked areas.[31, 32] On May 22, protestors, including the police officers who usually direct traffic in the case of roadblocks, stopped six lanes of traffic near the capital's Independence Monument.[33] Violence and intolerance amongst recipients of water truck deliveries have also caused water deliveries to take place less frequently, only exacerbating the scarcity and prompting a more desperate public outcry. Hotels and restaurants are now prioritized for water deliveries, causing additional backlash from locals. Protests and roadblocks in response to water-related issues are likely to persist in the foreseeable future until the government properly addresses the crisis.

On the Horizon

The water crisis in Mexico City and the Mexican government's responses are likely to impact the traveler experience.

What to watch for in summer 2024:

- **During infrastructure maintenance and installation, water disruptions will occur.** To properly carry out maintenance and improvement operations, authorities must cut water supplies temporarily, meaning that the already high water demand will continue to rise. Travelers are advised to stay updated with local media for when maintenance workers will cut supplies and always store enough water to last until the interruptions end.

- **Limiting water use is encouraged, likely impacting traveler conditions.** With new rationing programs, businesses may be encouraged to reduce water consumption by clients. Public estrooms and other water-reliant services may become limited or closed.

- **Alternate modes of water delivery carry underlying health risks.** Travelers are at increased risk of contracting diseases from water delivered via unconventional means, or water stored improperly for extended periods. Travelers are advised to drink bottled water for the duration of their stay in Mexico.

- **Demonstrations and civil unrest are on the rise, threatening traveler security.** Protests around the city will cause localized disruptions. Maintain situational awareness when traveling in affected areas. As tensions between protestors and government officials persist, the possibility of clashes between demonstrators and authorities rises as well.

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30 https://www.borderreport.com/regions/mexico/mexicos-drought-heatwave-and-water-shortage-are-so-bad-even-police-are-blocking-traffic-in-protest/

31 https://www.americasquarterly.org/article/mexicos-water-crisis-is-spilling-over-into-politics/

32 https://www.reuters.com/world/americas/mexico-city-residents-protest-unprecedented-water-shortages-2024-01-31/

33 https://www.reviewjournal.com/news/nation-and-world/mexico-city-assesses-damage-to-monument-after-anti-rape-march-1829142/attachment/mexican-officials-cordon-off-the-iconic-angel-of-independence-monument-after-protesters-defaced/

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