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Takeaways from meeting “Challenges when sharing a vital resource: the Colorado River”

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There has been a chronic drought on the Colorado River since 2000. In recent years, the Colorado River has produced between 9 and 12 million acre-feet of water annually. The 1944 Water Treaty between Mexico and the U.S. assumed a minimum annual production of 15 million acre-feet. The U.S. Bureau of Reclamation mandated water cuts to users in the lower Colorado region in 2021 and 2022.

Water salinity and temperature are other factors to consider besides quantity. As drought induced conservation cuts are made, there is greater pressure on the system’s ability to sustain acceptable salinity levels in water deliveries to Mexico. As climate change continues, the number of days with river temperatures above 100°F are expected to increase significantly.

The 1944 Water Treaty defined the water allotment of the Colorado River between Mexico and the U.S. It assigned Mexico an annual volume of 1.5 million acre-feet and up to 1.7 million acre-feet when there is excess water. In cases of extreme drought, the treaty established that the water distributed to Mexico would be reduced in the same proportion as U.S. consumer reductions. The treaty system for binational cooperation has proven resilient and adaptable to the current situation.

Mexico and the U.S. collaborate to manage this shared resource through the International Boundary and Water Commission (IBWC). IBWC Minutes 319 and 323 established that Mexico would join in shortage sharing, initiating the ongoing principle that when one country is in shortage, the other is too. Mexico is also an invited observer to U.S. Colorado River operations, which allows important information sharing.

A drought contingency plan was agreed between Mexico and the U.S. in IBWC Minute 323. The Minute addresses permanent and recoverable reductions at low and high reservoir levels, environmental concerns, salinity, projects and investments, Mexican water storage in the U.S., variations in flows towards Mexico, and emergency water deliveries. These agreements are still considered insufficient to address water scarcity and are thus expected to be renegotiated. Additional government actions against water scarcity include volume conservation in Lake Mead, water transfers, and a study on environmental impacts to identify additional actions that help stabilize reservoir levels in the short term.

The federal governments began discussions on emergent measures against the drought in February 2023. Measures for water augmentation will likely focus on desalination, new groundwater extraction, and water reuse and conservation. The Baja California state congress recently approved the investment of 400 million pesos for water infrastructure. The Mexican government is working to reactivate public forums to revise conditions,



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forecasts, and new measures to negotiate in 2024 and 2026. Conflicts over water intensive industrial projects in Mexico are expected.

The U.S. Environmental Protection Agency is helping fund a wastewater treatment project in Tijuana that could serve as a model for further cooperation along the border. The San Diego County Water Authority (SDCWA) has helped Mexico with emergency deliveries to ensure sufficient water supply. SDCWA invests in water supply reliability by increasing conservation. The county uses 40% less water today than in 1990. It is also investing in new sources of supply, such as a desalination plan and multiple potable water reuse projects, after the Quantification Settlement Agreement signed in 2003.

The drought is expected to persist. Based on historical data, water demand is projected to exceed supply in the near future. Colorado River flows are estimated to decline between 11% and 55% by the end of the century.

Water management plans at the binational and local levels are urgent. These plans should implement fair and equitable water tariffs, prioritize water conservation considering social and environmental costs, and shift towards a focus on water demand and precaution to constrain water-intensive activities. Democratic, transformative, and multi-level governance mechanisms for transboundary waters must be developed and trust in government institutions must be rebuilt. Since around 80% of water use in the region is for agriculture, incentives for water conservation in this sector could be very impactful.

Academics must take a more proactive role in disseminating information on the social and environmental costs of water scarcity from a social justice perspective. There is space for collaborative research and data integration on the water-energy nexus, water conservation practices in agriculture, and alternatives to diversify water sources.

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