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HARVESTING THE SKIES TO MEET OUR FUTURE WATER NEEDS

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ABSTRACT: Careful, well-designed management of our atmosphere's water resources, known as cloud seeding, affords New Mexico an opportunity to confront the challenge of meeting the region's growing water needs while working with neighboring states. Groups in New Mexico have teamed with Texas ground-water districts in recent years using cloud-seeding to help solve pressing water needs. The desire to work together endures but has been impeded largely by a lack of public funds to support continuous operations from year to year. New Mexico river compacts warrant cooperation among interests in New Mexico and Texas. Inadequate funding reflects questions about the efficacy of cloud-seeding technology. Rigorously-focused research into the seeding of convective clouds in semi-arid Texas during the 1980-1990s produced a reliable conceptual model for augmenting rainfall. Randomized seeding yielded results, published in esteemed scientific journals, reveal timely and well-targeted seeding enabled storms to live 40 percent longer and spread rainfall over a 30 percent larger area than nearby unseeded storms, resulting in average rainfall from seeded storms of 2.3 times as much as non-seeded cells. Moreover, on-going statistical evaluations of these projects by independent observers, using Doppler radar data, reveal substantial increases in rain water produced by seeded storms. In the past eight years, seeding statewide has produced an average increase in rainfall output of 186,000 acre-feet per year merely from single clouds. Add in multi-cell convective storms and total water output climbs to an average of 1,540,000 acre-feet of water per cloud-seeding season. A model for establishing a long-term water-development strategy for New Mexico is on display next door in Texas. Over a 7-year period, beginning in 1997, the Texas Legislature provided public funds totaling \$13.7 million for the design and construction of long-term rain-enhancement projects by ground-water conservation districts. With these districts matching the State funds, a dozen rain-enhancement projects covering 46 million acres--or more than a fourth of Texas. A decade later, many of these projects, despite State funding being curtailed, continue to thrive. Studies show the cost to produce additional rainfall by seeding consistently averages under \$10 per acre-foot.

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