

**Summary of remarks by Margaret Bowman, Walton Family Foundation  
At the Environmental and Energy Study Institute briefing  
regarding managing climate risks in the southwest  
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Good morning, and thanks to EESI for sponsoring this briefing.

By now, everyone is well informed by the prior two speakers about the growing challenges in the West due to climate change. I am not going to go into any more detail about these challenges. Instead, I'd like to talk about how we respond to these climate-induced problems, and focus particularly on addressing the problem of water shortages.

I hope you leave this briefing today remembering two things. First, there is a water crisis throughout the West, and as a result business as usual needs to change. Second, this is a crisis that is solvable if we take action now. And there is a path forward that will provide economic, ecological and social benefits for the region.

I work for the Walton Family Foundation, founded by Wal-Mart icon Sam Walton. Our work on water supply is focused on the Colorado River basin, so my remarks will focus on that area, but what I will say is relevant for other parts of the West as well.

At the foundation, we have a vision for the future in the Colorado River basin. In that vision, the region's agricultural industry will be modernized with more efficient irrigation technologies. This modernization will not only increase the productivity of agriculture, but will also result in a surplus of water that farmers can voluntarily sell or lease to cities and for river flows.

In our vision, cities manage their water supplies smartly, with improved efficiency and recycling technologies. Residents transform their landscaping to look like the beautiful arid western landscape where they reside, rather than eastern green grass communities. With these changes, cities are resilient to unpredictable weather, and not rendered bankrupt due to expensive and environmentally damaging Rube Goldberg plans to pipe water in from faraway lands.

In our vision, the iconic rivers of the basin remain healthy and resilient. As a result, the region's \$26 billion recreation and tourism industry continues to grow, and residents looking for a high quality of life are attracted to the region to work. Fish and wildlife are healthy, and as a result the region is not subjected to divisive and expensive endangered species act fights.

And finally, in our vision cities, towns, federal and state agencies, water utilities, farmers and ranchers, tribes and conservationists all work together to adapt our system of managing water so that energy can be spent on sharing water most effectively rather than litigating old disputes. With this more fluid market for sharing water (pardon the pun), private capital is attracted into investing in the region's water solutions. Added to federal and state funding, these private investments can finance the infrastructure improvements needed to effectuate these changes.

This may be a bold vision, but it is not a crazy one. All of it is achievable. And for the most part, the solutions in our vision are being experimented with on the local level. What we now need is the political will to scale these changes up to the regional level.

About a year ago, the U.S. Department of Interior released a water supply study on the Colorado River basin, concluding that by 2060, the gap between water supply and demand will be greater than 3.2 million acre feet. (One acre foot will supply a typical suburban family for a year.) We've crunched the numbers, and believe there is enough water to meet the projected water gap in the Colorado River states if we invest in just a few critical solutions.

First, we need to upgrade irrigation infrastructure in the basin and implement other agricultural water saving techniques. And we need to utilize water banking mechanisms to share this saved water

throughout the basin. Voluntarily implemented irrigation efficiency, deficit irrigation, rotational fallowing, crop shifting and other innovative irrigation technologies are concepts that many farmers are already implementing. Combined with these water saving techniques, water banking is a market-based approach that allows farmers and others to bank their unused water voluntarily. This saving for a (non) rainy day system is a common sense approach to making our water supplies more resilient. We estimate that one million acre feet of saved water can be generated from agriculture in the basin, while keeping farming and ranching a vibrant part of the region's economy. Farmers and ranchers need to stay on their land, not only to grow food, but to maintain the western culture and landscape. And from an environmental perspective, farmers often call water down the river rather than having it sent out of the basin to distant cities. Without farms, a lot more rivers would be dried up.

Second, we need our cities to ensure they use their water as efficiently as possible so they can continue to grow while living within their water means. Water efficiency programs have worked time and again, and usually represent the lowest cost and fastest option for new water supply. We estimate that one million acre feet of savings can be gained through urban water efficiency. Conservation can occur through improved landscaping techniques, rebate programs that incentivize water-saving fixtures, and requirements that new construction be water efficient. In addition, municipal water audits routinely result in dramatic savings.

Third, we need to stretch water supplies further through recycling. Wastewater, stormwater and grey water can be treated and reused for irrigation, industrial processing and cooling, and in many places for potable use. In addition, recycled water should be used to maintain river flows and to replenish groundwater supply. We estimate that 1.2 million acre feet can be gained through these recycling approaches.

The estimated savings from these solutions may be enough to fill the projected water gap in the Colorado basin. But to be cautious, Colorado River basin states should pursue some targeted water augmentation projects. If new supply solutions are narrowly targeted to address specific local water supply gaps and can do so without environmental harm, they can be an important part of the solution. In contrast, large water import schemes are expensive, energy intensive, environmentally harmful and not targeted to the locations where water is needed.

For the most part, these solutions I have outlined are not untested ideas. Communities across the basin are already using promising practices that can serve as a model for others across the region. Let me share a couple of examples:

- Temporary fallowing arrangements in Yuma Arizona and Palo Verde California have generated saved water for urban areas, and cash for farmers, without widespread loss of agricultural lands.
- The town of Sierra Vista Arizona and the surrounding Cochise County have each passed laws that require certified water-efficient appliances in new homes. They are also dedicating recycled water for groundwater recharge near the San Pedro River, reducing the impact of the city's groundwater use on the river.
- And several community leaders across the West have banded together into a network called the Western Adaptation Alliance. Through this, communities are comparing approaches to water efficiency and recycling and exploring other ways to make their water supplies more secure and adaptable.

Efficiency, recycling and carefully targeted water augmentation solutions can generate the water needed to meet the Colorado River basin's future needs. What may prove to be the hardest part of our vision to implement, however, is taking the first key steps - it is building the political will in the region to work together to scale up these solutions.

A key lesson from the extreme weather events of the past few years is that our communities and economies are interdependent. Solving the region's urban water needs by drying up agriculture will end up harming cities because food supply and the local economy will be disrupted. Further draining rivers to meet water needs will harm the important tourism economy, and make communities in the region less

desirable places to live. Working together to stretch and share the region's water supplies may be difficult, but it is the only solution that will ensure a resilient region into the future.

Just this week, the Intergovernmental Panel on Climate Change released its latest report on climate change, focused on adaptation. This report identified many freshwater-related risks from climate change, particularly in the western United States. But it also highlighted the need for flexible and low-regret solutions that can build resilience to climate change. And it highlighted resilience strategies that provide co-benefits for human health, livelihoods, social and economic well-being, and environmental quality.

And last week, an exciting collaborative restoration experiment occurred in the Colorado River delta in Mexico. This experiment provides a good example of the co-benefits of water resilience solutions that are highlighted in the IPCC report. Last Sunday, a pulse flow of water (otherwise known as a managed flood) began to be released into the dry river bed of the Colorado in Mexico. This experiment was designed to restore riverside trees and wetlands for birds and other wildlife, and was just one component of a groundbreaking international agreement between the United States and Mexico signed in 2012. This five year agreement also provided additional water for California, Arizona and Nevada, and committed Mexico to work with the United States when reductions in water use are needed.

It is too soon to know the ecological results from this experiment – we must wait for the flood waters to recede. But the social benefits of this experiment are already quite clear. Hundreds of residents from the Mexican town of San Luis Rio Colorado (a town whose name includes their lost river) have been out celebrating the river's return. Young children who have never seen the river were playing in the water. Elders who remember the river before Hoover Dam was built were watching the river return. And perhaps equally exciting, state and federal officials from both sides of the border were celebrating an increased level of cooperation – and hopefully looking for the next opportunity to design agreements to share water to make the whole region more resilient.

The old adage rings true with our water supply – a stitch in time saves nine. If we develop the courage to work together today to address our shared water needs, we can not only address these challenges in a more cost effective fashion, but we also can avoid divisive battles that break the interdependent strings that will keep our region resilient into the future.

The West was built by innovative pioneers working together to harness the region's natural resources. We cannot build our way out of the current water supply challenge the way those pioneers built the early water systems – there simply isn't enough water left. But it is time to reinvigorate that pioneering spirit. It is time to transform the West again. This time, we need to transform the West into the most water efficient region in the world.

Thank you.