A Year Without the Colorado River, as Seen by Economists

Posted by Sandra Postel of National Geographic's Freshwater Initiative in Water Currents on January 20, 2015

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The Los Angeles skyline against the San Gabriel Mountains. If the Colorado River suddenly disappeared, seven counties in southern California would lose $657 billion in a year. Photo: Nserrano/Creative Commons

Imagine if each tap that delivered water from the Colorado River – whether to a farm, a factory, or a home – suddenly went dry for a year. What would happen to the West's economy?

That's pretty much the question a team of researchers at Arizona State University set out to answer – and the results are startling.

The region would lose $1.4 trillion – that's trillion, with a "t" – in economic activity, along with 16 million jobs.

Each of the six states – Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming – plus seven southern California counties supplied by the Colorado River would see losses to their gross state product (GSP) of half or more. Nevada's would drop by 87 percent.

Commissioned by Protect the Flows, a coalition of over 1,000 businesses, the study reveals how crucial the Colorado River is not only to these seven states that make up the watershed, but also to the nation as a whole.

Of all the water used in the basin, 43% of agriculture's supply and 41% of municipal and industrial supplies come from the Colorado River.

California's seven southern counties led the states in estimated losses, with some $657 billion in economic activity dependent on the river's water. Next was Colorado with $189 billion, followed in descending order by Arizona, Nevada, Utah, New Mexico and Wyoming.

About 7 million jobs would disappear in California, and more than 2.1 million each in Arizona and Colorado.

The study doesn't fully account for the estimated $26 billion in annual benefits to the recreation economy that depends on healthy flows in the Colorado River and its tributaries; these losses in "leisure" benefits would add to the total economic impact.

It might seem a meaningless exercise to estimate damage to western economies from the complete disappearance of the Colorado River.

But given what a lifeline the river is to the region, and the amount of economic activity that depends on it, even a partial reduction in flow could be a big blow. And for Arizona, Nevada and southern California, which get their Colorado water delivered from Lake Mead, the falling level of the lake over the last decade makes the ASU-study scenario hit uncomfortably close to home.

Since 2000, Lake Mead's level has dropped more than 100 feet. From nearly full 14 years ago, the reservoir is now at 41% of capacity.

Researchers at UC-San Diego's Scripps Institution of Oceanography have calculated that without aggressive conservation efforts there's a 50-50 chance that Lake Mead could reach "dead pool," essentially an unusable state, by 2036.

Meanwhile, the upper basin states seem to be in a race to grab every drop of Colorado River water they can, with Utah proposing to spend up to $15 billion on new water supply projects. Wyoming and Colorado are also eyeing schemes that would further drain the river.

The Colorado River accounts for nearly two-thirds of the basin's gross state product. While farms would obviously suffer from the Colorado's diminishment – as would everyone in the nation who eats fruits and vegetables and foodstuffs produced there – in dollar terms the industries most affected include real estate, finance and retail businesses.

The ASU study, which was carried out by Tim James and colleagues at ASU's W. P. Carey School of Business in Tempe, did not attempt to examine how the economic losses of a disappearing Colorado River water might be mitigated by more efficient or effective use of water. Switching from flood to drip irrigation on farms, for example, can increase "crop per drop," allowing yields to be maintained or even increased with less water.

Likewise, the opening up of markets that allow users to buy and sell water more freely can greatly increase water productivity and reduce the economic impacts of declining water availability.

Since agriculture consumes 80 percent or more of available water in most of the West, but typically contributes a small fraction to each state's GSP, shifting even a small percentage of farm water to urban and industrial uses could lessen the impact of reduced water availability.

The ASU study is a wake-up call for the basin states to plan collaboratively for a future of decreased Colorado River water. Incentives for greater conservation, efficiency, reuse, and trading can play a big part in maximizing benefits from the water available while ensuring enough flow to protect the health of the Colorado and its tributaries.

The Colorado River System Conservation Program is a useful start. So is the ambitious goal set by Los Angeles Mayor Eric Garcetti last October to cut LA's water imports by half within a decade.

With climate scientists predicting a drop in the river's flow of 10-30 percent in the coming decades, a future of severe economic impact is far from hypothetical.

Sandra Postel is director of the Global Water Policy Project, Freshwater Fellow of the National Geographic Society, and author of several books and numerous articles on global water issues. She is co-creator of Change the Course, the national freshwater conservation and restoration campaign being piloted in the Colorado River Basin.