As an economist, I certainly understand the allure of water auctions over the inflexible and inefficient traditional methods of water allocation.

However, as we look around us in the West, it is apparent that actual on-the-ground implementation of water auctions is rare, even in situations perfectly suited for them. And I think it’s important for us to consider why that may be the case.

I want to delve into a recent case study in Arizona that may help to give some perspective on the benefits of water auctions and also some of the concerns surrounding them. The case study is a recent proposal from Central Arizona Project to allocate a future, distinct class of new water supplies using an auction mechanism.

In the brief time I have, I plan to summarize this auction proposal, the main concern about the proposal expressed by stakeholders, and briefly discuss what I think are perhaps a few of the underlying reasons for why the proposal may have been rejected by stakeholders.
General background on CAP....

In the first half of the last decade, water demand projections started to show that long-term demand for CAP water would someday exceed the currently available supply. So the CAP Board directed staff to work with stakeholders to determine when new supplies would need to be acquired and who would get out much of it, in a way that “encourages fair competition.”
ADD stands for the Acquisition, Development, and Delivery of the proposed new water supplies that would be delivered through the CAP aqueduct. Participation has been diverse, and has included representatives of established and emerging municipalities, private water companies, developers of master-planned communities, agricultural users, industrial users, and of course, the Arizona Department of Water Resources, the Bureau of Reclamation, and CAP staff members.
The big reason why these entities have elected to participate in the process is the fear that without an ADD Water process, everyone with a need for water would have to go to the same folks and negotiate with them for more water, and by competing for the same water supplies, we would all end up driving up the cost of water. And then we would all have to work with the Bureau to develop wheeling agreements for us to put non-Project water into the CAP aqueduct. What a mess!
Instead, the ADD Water concept sets up CAP as a single buyer for everyone interested in getting more water. Part of the process would be to figure out how to distribute the water that CAP would purchase.

Early on in the process, CAP took a poll asking participants what issue was most important to them about this allocation process, and 70% of the participants identified their #1 issue as “everyone gets what they need”.

In November 2010, after several years of stakeholder meetings, CAP staff floated a proposal on how to allocate the new water supplies using an auction mechanism.
The auction proposal went something like this:

1. CAP would buy and distribute water every 5 years.
2. CAP would talk to potential customers and identify a reasonable volume of water that they think they could sell in the first phase, acquire it at some cost (Single Buyer Acquisition Cost) and announce the full quantity of water available ($Q_{\text{auction}}$).
3. Instead of bidding price, customers would bid the quantity of water they would like for the price set by CAP in sequential rounds. In the first round, the price would be the actual cost of the water, including acquisition, development, and delivery. So customers would think about this cost, consider how much water they would be willing to purchase at that price, and submit a “bid” of the quantity of water they would like for that price.
4. CAP would tally up the total quantity desired for the starting price. But it is expected that customers would order more water than the available supply at the actual cost of acquisition. This is a problem that the auction is designed to solve. CAP would raise the price a little bit and hold another round of quantity bidding. And we would expect that some customers would want less water at this higher price, and maybe even a few would decide they don’t want any water at this price, and the quantity of demand would fall. CAP would continue to raise the price and solicit quantity bids until a price was identified for which the quantity demanded was equal to the quantity supplied. This is called the “market-clearing price”.

Everyone who requested water at the market-clearing price would get the water they ordered at that price. Customers that said they didn’t want any water for that price would not get any water.

At the end of the process, as you have raised the price, you have restricted demand to the quantity of water that is actually available. Just like what happens in markets for other goods, like wheat: if supply is low and demand is high, the price is allowed to go up, and so the price gives the consumer information about the relative scarcity of the good.

This process maps out the aggregate willingness to pay for water across all ADD Water customers—the demand curve for water—something that is really difficult to estimate when you don’t have a process that is as transparent as this one.

This was a unique opportunity to inject some efficiency into water allocation, and as an economist, it was great to see the willingness of CAP staff to float this concept out there.
But not everyone was quite so impressed with CAP’s proposal. Although it received genuine praise from some stakeholders for its creativity, it was basically rejected by the majority of the ADD participants. There are a lot of reasons for this, but this is a short session, so I will only touch on what I think was the main torpedo that sunk the ship.

The biggest gripe that was most universally shared, at least among the comments that I’ve heard and read, boiled down to this: Auctioning water just isn’t fair.

You should not be excluded from getting water just because you are not willing to pay market price for it. Everyone who is willing to buy water at the cost of acquisition should get some. Right? Isn’t that how it’s always been? Why start “artificially inflating” the price?

Rallying around this idea, several stakeholder groups developed an alternative allocation mechanism: Rather than auctioning the water, how about you just tell us how much water there is and how much it cost you to get it, we will all tell you how much water we want at that price, and if demand exceeds supply, we will share the pain evenly. So if there is 20% more demand than supply, everyone gets 20% less than what they ordered.

Why is this not a good idea?

Recall how this is structured. CAP is the only buyer out there. This kind of single-buyer (monopsony) system creates market distortion where the purchase price that the single buyer is able to negotiate is less than what might be seen if the ADD Water participants went out individually and competed for that water. In this case, the acquisition cost is not an accurate representation of the true scarcity of water because the market effectively functions as though only one entity wanted all that water—not 50 entities.
If customers are not allowed to compete for the water, then important information about the scarcity of water is not passed along to the customer. And this information about scarcity has important links to water conservation. If the scarcity value of water is not reflected in its price, then users will have little economic incentive to conserve to the levels required by the true scarcity of water.

The bottom line with the stakeholder counterproposal is that somebody only willing to pay for water at the single buyer’s cost of acquisition would still get water, even though they are unwilling to pay the true, “undistorted” market price. Without the market distortions introduced by the single-buyer scheme of ADD Water, these entities would not be interested in buying any more water—they would make do by conserving or other means, and in a desert state, that might just be a good thing.
Why Are Water Auctions Not Embraced?

1. Conditioning
2. “Water is Special”
3. Fear of Unknown Impact

I want to close with three quick points on why I think water auctions do not enjoy more broad support.

Number 1: Conditioning. It seems that by receiving cheap water in the same way for so long, we are conditioned to expect that we will continue to receive water at this low price. This certainly limits our ability or perhaps desire to develop new methods for a new set of conditions. I think it has in some sense also led to a sense that we are somehow entitled to any water supplies that may come along, to receiving it at cost, and to the set of rules by which we receive it, regardless of how problematic those rules might be.

Number 2: The ability to implement water auctions may always be hindered by the sentiment that water is special. Indeed, the foundation of water management in Arizona is that water is held in trust by the State of Arizona on behalf of the people. This is a continuous thread through all of Arizona water law and policy. And a corollary of this idea is that water is not a commodity to be granted to the highest bidder. Willingness to pay has not influenced water distribution to date, and the 100 years of history in this regard is a significant anchor for allowing markets to improve the efficiency of water use.

And a third reason I believe we do not see stronger water markets, including water auctions, is that I think we are afraid of the unknown impact of having to pay what we think we might be actually willing to pay for water—the fear that the bid price will get high enough to cause some real lifestyle changes in these desert cities. I happen to think these fears are overblown, but I certainly understand that depending on who you are, those changes can be painful and politically difficult to swallow, and in some way, a water auction makes that eventuality suddenly very real and a bit scary. But as we start looking to expand our supplies, we should consider that perhaps in the end, a market signal would be just the thing to remind us that perhaps it would be cheaper to live within our means than to expand them.
Panel Q&A