

# Environmental Economics

*The Cromulent Economics Blog*

May 26, 2008

## Water Wars

The Economist [discusses](#) the dynamics behind them. Cheap arms make it easier to kill over water, global warming is making water more scarce, and population growth is increasing demand. Does that mean wars are more likely? Not necessarily...

The main reason that people are now (or will be) fighting over water is that the institutions for managing water (property rights, prices, trades, etc.) either do not exist or are inadequate for new conditions of scarcity. In the past years of abundant water, there was no need to decide who owned what, how to divide water among others, whether it was necessary to store water, etc. But -- as water becomes more scarce -- these institutions are necessary to avoid fighting over too little supply and too much demand. As I discuss in my [dissertation](#) (chapters 3, 4 and 7), institutions for managing water do not just drop into place -- they take effort to design, need to reflect local conditions, will evolve, and create winners and losers.

**Bottom Line:** Under the status quo of "no rules", water wars are indeed likely. We can avoid them by designing institutions that reflect local conditions, guarantee some level of equity (e.g., per capita water rights), and allow for the efficient distribution of remaining water. I discuss how water markets can accomplish those goals in [many prior posts](#).

**Memorial Day Bottom Line\*:** Clausewitz said that war is politics by other means. As we consider the sacrifices of those who have suffered in war (soldiers and civilians, families, friends and communities), let's also remember and condemn leaders who have abused their power in waging war. Wars over water are between one group claiming a right to keep what another claims a right to use, and water wars often arise from the same leadership failures. As usual, it only takes one idiot to start a war, but he often finds another idiot to fight with. And the innocent suffer.

**Today at Aguanomics:** Posts on [WaterAid](#) (development, institutions, water) and [Black Market Oil](#) (Drivers get an 89% subsidy now; so raise the gas tax to \$4.50/gal)

\* Yeah, it's serious, and yeah, it's politics, but we should think heavy thoughts on Memorial Day. The Fallen deserve gravitas.



Posted by [David Zetland](#) on May 26, 2008 at 08:39 AM in [Government Policy](#), [Water Quantity](#) | [Permalink](#)

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## Comments



[Bill Goldschein](#) said...

Who needs please when we've got guns

Jack Johnson-Sleep Through the Static

[May 26, 2008 at 01:00 PM](#)



[Bob Murphy](#) said...

Great post! I'm glad that some people recognize water wars are about ill-defined property rights, rather than matters of justice and greed.

[May 26, 2008 at 03:12 PM](#)



David Zetland said...

Jack -- I'll assume you're being sarcastic. Just in case you're not, check out the effectiveness of guns for settling disputes over land in the Middle East :)

May 26, 2008 at 03:44 PM



justakim said...

Can you elaborate on schemes to reflect current conditions? Are you thinking distribution of %? I'm imagining it'd be difficult to figure out who should get how much of what when it's hard to tell how much there is until there isn't any.

May 26, 2008 at 04:48 PM



justakim said...

I think that's Bill quoting Jack for amusement.

May 26, 2008 at 04:50 PM



David Zetland said...

Bill -- my bad. Never heard of Jack (until now :)

Justakim -- Current conditions are indeed a combination of risky (following a probability dist.) and unknown (impossible to predict). I tend to deal with this problem by allocating some rights on a per capita basis, e.g., 100/gal/day and then allocating the "unknown" remainder on a short-term basis, i.e., weekly or daily auction allocation. Put differently, I'd allocate a small, known and fixed amount far in advance and then allocate remaining quantities within a shorter and shorter timeframe as risk and uncertainty grew.

May 26, 2008 at 06:37 PM



John Whitehead said...

David,

Never heard of Jack Johnson? Isn't that the guy who did the Curious George soundtrack?

May 26, 2008 at 07:20 PM



David Zetland said...

Hmmm... I should listen to my comic-book songs more often :)

May 26, 2008 at 07:30 PM



DJ said...

Utah has a system of water rights that define how much water a person, company, or city can use. This makes a certain

amount of sense. However, the rights have a "use it or lose it" character, in order to prevent hoarding-- the State can and does confiscate water rights that are not put to "beneficial use." This promotes waste. It's not uncommon to see farmers irrigating unplanted fields just to demonstrate that they're using their rights.

The bottom line: even where water is treated as a scarce resource, laws don't always have the consequences intended.

May 26, 2008 at 08:00 PM



David Zetland said...

DJ,

You are right that the laws do not have the intended consequences, but the problem -- in this case -- is that they do not take water scarcity seriously. If they did, they would allow rights' holders to trade (lease/sell) their water rights. That's the way that any efficient usufruct market would work.

The good news is that it's fairly easy to trade once rights are defined (after conveyance complications are taken into consideration). In many parts of California, they haven't even gotten the rights straight :(

May 26, 2008 at 09:40 PM



justakim said...

While I see the effectiveness of the short-term auctions, I also see some concern in not being able to predict how much it's going to cost you for say, a season's crops. I suppose you can go further to develop futures contracts on water?

May 26, 2008 at 11:56 PM



Mario said...

I perfectly agree with the necessity of water regulations. It may be interesting, though, reading the Oregon State University research quoted by the Economist few weeks ago:

"The world's 263 trans-boundary rivers (whose basins cover nearly half the land surface of the world) generate more co-operation than conflict."

May 27, 2008 at 01:05 PM



said...

@Justakim -- you've got the right question, and I was vague before. I'd structure water contracts in this way:

First 25% of estimated water -- lifeline rights to people

Next 25% -- sold on five year contracts

Next 25% -- sold on one year contracts

Last 25% -- sold in weekly/monthly spot markets

The key to making this work is that there's some storage. Less storage means that contracts will have to be shorter. Farmers with orchards would buy 5 year water. Farmers with annual crops would buy one year water and then top off with spot water... (urban, industrial would also participate)

@Mario -- I saw that article too, and it makes a good point. I think one reason that there is more cooperation than conflict is that it's "not worth" paying dead bodies to increase irrigation :)

May 27, 2008 at 02:23 PM



David Zetland said...

The last comment was mine. Bloody typepad...

May 27, 2008 at 02:24 PM

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