

Environmental Economics

The Cromulent Economics Blog

May 26, 2008

Investing in Water

Warning: This one is a little long and a little vague. Feel free to contribute, clarify, contradict.

Lamiadestra asks

Do you know of any interesting research about returns to investing in "water" (in a broad sense: for drinking, producing energy, for watering lands, for home use, for... whatever) around the world? I'd personally find that very interesting.

This question really needs a book-length answer (and even then...), but here's my best blogger shot at it: Let's start with uses (ordered from highest to lowest value):

- drinking water (tap or bottled)
- industrial water (energy or production)
- residential water (existing or new development)
- irrigation water (annual or perennial crops)

And now let's talk about who is making the investment and where they are (matched in most/least wasteful pairs):

- public/private
- collective/individual
- cooperative/corporate
- developed/developing
- wet/dry places

As you can see from these lists, many factors matter. You can also see that I have made a few controversial choices. I am not married to any of these choices, but I made them with specific examples in mind -- and I can easily be wrong. *Please* correct or argue with me in the comments. Links to specific examples are particularly welcome!

Now consider the factors affecting "returns" to investing in water:

1. Benefit/cost ratios: For any private investment in water, that ratio is likely to be higher than one. For government investment in water, the ratio is often less than one. (I'll get to that below...)
2. Opportunity costs: This means the cost of uses forgone by using water in a certain way. Water used for irrigation is not available for drinking.
3. Fixed costs (e.g., aqueducts, dams) and externalities (e.g., damage to environment from use or disposal of water -- including discarding water bottles, creating nasty runoff, etc.)
4. Equity and efficiency: Water does have a social/public/moral dimension, so *legitimate* equity factors (the children!) will trump illegitimate equity factors (the farmers!)

The highest uses (after drinking water, bottled or tap) are probably in manufacturing drugs (legal and illegal) or high-technology equipment (microchips). The lowest uses are almost always the result of government policies: farmers in India who get free electricity for irrigation pumps, the Libyan "[Great Manmade River](#)" (delivering fossil water from under the Sahara for growing wheat), or the recently-discontinued Saudi program of mining fossil water to grow "national wheat" [great post [here](#)].

My least-favorite waster, Imperial Irrigation District, gets its own line. [[posts](#)]

So, let's get to your main question -- where should one invest in water? It depends (says the [many-handed economist](#)) on the property rights, competition, mix of equity and efficiency considerations, etc. In fact, I'd say that the most profitable place to invest in water is where rights are clear and the high-value use is identified. That's why Nestle and Coke are in the [bottled water business](#) (Raw materials cost = 0.03 percent of the retail price? Gotta love it.)

Unfortunately, Nestle's investments are not doing very much for the people most in need -- poor people in developing

countries -- and governments in those countries are not doing very much either, copying the mistaken policies that we see in the western US (cheap water to farmers, self-sufficiency in food, etc.), and the poor are left behind.

Bottom Line: Water is essential to life. Unfortunately, investments in water that could improve many people's lives are distorted by unfair, inefficient and downright criminal political mismanagement. (That strong enough for ya?)

Today at Aguanomics: [sustainable living](#) (it might work out fine -- if the icecaps don't melt...)



Posted by [David Zetland](#) on May 26, 2008 at 10:57 PM in [Government Policy](#), [Policy Benefits](#), [Policy Costs](#), [Water Quality](#), [Water Quantity](#) | [Permalink](#)

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Comments



[Mario Alemi](#) said...

Hi.

Right, bottled water could even be seen as no-water investment. It is brand driven. You sell the "San Pellegrino" brand with some water.

Unfortunately in some places (I was recently in Sanaa, Yemen) bottled water is the only, and extremely expensive, way to access potable water.

What about investing in water technologies? Process water like ultrapure water (e.g. for the electronic chips) and mobile water purifiers (for energy plants) rely on new technologies, quickly evolving.

The same for wastewater, a business driven by necessity, regulation and technology.

Cheers, Mario

[May 28, 2008 at 06:41 AM](#)



Ed Vogt said...

There are a lot of different ways to invest in Water. There are many companies in the US and abroad that deal directly with the generation and distribution of drinking water (US Water and American Water in the USA, Veolia internationally). In addition, there are a lot of plays in terms of equipment manufacturers. Probably the single biggest opportunities have to do with Water Scarcity. Generally, this will require taking marginal waters, tertiary treated wastewater, brackish waters, and seawater, and treating them to drinking water standards. This is already commonly done in arid or semi-arid areas. The technologies that are used for this is usually a combination of microfiltration membranes in combination with reverse osmosis membrane treatments.

It should be kept in mind that water supply is kind of like food supply. You have to have it to live in contrast to say ... electricity. As such, there will always be a view that water should be cheap. There are plenty of examples of people spending a lot more for water than they should (bottled water) coupled with people complaining about the price of water (just try to increase the price of tap water & watch the public scream).

In regards to your comment regarding benefit/cost of government vs. private, that seems a little over reaching. Granted if you are going to invest in something, this is valid but as a service to the world, it's questionable at best. There always are and always will be stupid investments by governments of all kinds, but there are a lot of good investments to. Our public water systems have done far more to eliminate disease than any other medical advance. You wouldn't get the same bang for your buck from curing cancer. The resulting increase in productivity, and the relative cheapness of this effect is immense.

'Nuff said

May 28, 2008 at 10:57 AM



David Zetland said...

Ed -- good point on "public" water systems, but I do not think that their *provision* should be left exclusively to government. The government should finance provision of public water supply, but provision can be public, private or in-between (community, co-op, nonprofit). And we see examples of all types, worldwide.

May 28, 2008 at 11:07 AM



Ed Vogt said...

And we do see private influence in water systems. This is very common internationally, and is done in many places in the US including Indianapolis, New Jersey, and Phoenix among others. However, a "public" water system does not only apply to the water treatment facility. A "public" water system includes the water sourcing, the water treatment plant, the distribution system, the collection system (sewers), and the wastewater treatment facilities. Also, keep in mind that water systems in the US are controlled locally. Every city, town, or municipality controls their own water system. They have the choice to build, run, & operate it as they see fit. I've seen the full gambit from fully public systems run well & run terribly - both by public & private entities.

May 28, 2008 at 09:20 PM



John Wilson said...

Can't say I agree with the overall perspective here, but in the spirit of critique I'll offer one tweak: time should be one of your "factors" affecting "returns."

Time is important because if there is limited storage capacity, then you can't transfer water among users with different time demands. A classic example is urban/agricultural transfers in the Tampa Bay region of Florida. Azurix, an Enron spin-off, went around making economic efficiency presentations about how if they could buy and sell water rights, it would solve all sorts of problems. They promised to spur investment in irrigation efficiency so that water could be used by thirsty urban residents (read: yards).

Problem is, the urban "shortage" was in the summer and the agricultural "surplus" was in the winter. For those who aren't familiar with the Tampa Bay region, please accept as fact that there is nowhere to store that much water for six months.

Florida's planner-driven water management system lacks a method for explicitly determining "return" on investment, but it does a whole lot better than a market system would in making sense of the values that need to be balanced.

May 29, 2008 at 08:43 AM



David Zetland said...

John,

As Ed would no doubt agree, Azurix was clearly an incompetent private company (Enron strikes again!). Public managers have no monopoly on long term planning skills.

May 29, 2008 at 09:37 AM



Kabir said...

I must say I am a little confused. What exactly is investing in water? It seems from the above comments that you are

referring to investments in extraction rather than investment in increasing the sustainability of extraction - one of the ways that this might be achieved is to increase the possible sources of extraction (one of the things mentioned above). Other forms of investment (which i am not exactly an expert on) that help in increased ground water levels (crucial for the poor) also imply other ecological benefits. Complementarities in ecological investments must be taken into account when calculating returns (impossible task?). How does this fit into the use classifications above?

May 31, 2008 at 12:54 PM



David Zetland said...

Kabir -- I think that investing in extraction and sustainable extraction are the same thing, perhaps with a longer time-frame with the latter.

Note that ecological benefits need not be added if they are positive, and a water project already has a positive net benefit. OTOH, they *must* be considered if they are negative, i.e., they are offsetting part/all of the gains from the water project.

I am not one to advocate a project that has a 1.1:1 benefit:cost ratio -- because I think that's pretty aggressive (The Army Corps of Engineers love to do that), but PLUS + PLUS > 0 is okay logic for me :)

June 01, 2008 at 08:17 AM



Andy investing shaw said...

Hi

You are right. Investing in water as become the most important as the investing in property. But investing in property will give you a good income as the period increases but the investment in water will give you a daily income because people can leave without property but they cant live without water.

June 13, 2008 at 01:02 AM

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