The Economics of Clean Water: A Guest Post

September 9, 2008 @ 2:19pm
by Stephen J. Dubner

David Zetland is the S.V. Ciriacy-Wantrup Postdoctoral Fellow in Natural Resource Economics and Political Economy at U.C. Berkeley. He writes about the economics of water on his blog aguanomics and has recently appeared on Forbes.com and Fox Business News, discussing America’s “water crisis.” He

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Potability, Politics, and Pipes

By David Zetland

A Guest Post

In 2000, the United Nations declared an intention to reach eight Millennium Development Goals (MDG’s) — each with one or more targets — by 2015. The MDG’s are attracting a lot of money, but money can’t fix everything.

Since I’m a water guy, I’ll explain how money may not work by looking at Target 3 of MDG 7:

Halve the proportion of the population without sustainable access to safe drinking water and basic sanitation.

Let’s begin with some baseline figures: According to the U.N., 78 percent of the world’s population had access to improved drinking water sources in 1990. As of 2004 (most recent data), that share was 83 percent. (For sanitation, the figures are 49 percent in 1990 and 59 percent in 2004, but let’s ignore this sub-target for now. Let’s also ignore the 1990 baseline for a program that began in 2000.)

But wait, did you notice the discrepancy? The goal being measured and pursued (improved drinking water sources) is not the originally proclaimed goal (sustainable access to safe drinking water). This discrepancy is no accident. Rather, it reflects the difference between the ambitions of development activists (safe and sustainable) and the realities of development
Since “safe” is hard to measure, bureaucrats use the presence of “improved drinking water supplies” as a proxy for water quality — and they quantify that by counting pipes, pumps, and faucets. Their treatment of sustainable is even worse: “Sustainable access is currently not measured for reasons of a lack of common understanding [of] what constitutes sustainable access and how to reliably measure it [on a] global scale.”

Oops.

As Peter Drucker once said: “what gets measured gets managed.”

We know that thousands of well-meaning people will be spending billions of dollars to install pipes, pumps, etc. Will those pipes deliver safe and sustainable water? We can’t be sure about that result — since it’s not being measured — but we can be sure that projects that deliver pipes will get funded, bureaucrats who deliver 100 percent pipe coverage will be lauded for helping the poor, and outsiders are likely to confuse 100 percent pipe coverage with 100 percent access to “safe and sustainable” drinking water.

Bureaucrats will declare victory, outsiders will applaud, projects will wrap up, money will disappear, and those unlucky enough to have pipes with unsafe and unsustainable water will be left to their own devices.

So has the international development community tried to avoid such an ineffective and wasteful outcome? No. Instead, it has pressed for enough money to install pipes everywhere. Perhaps the most famous proponent of this “solution” (besides Bono) is Jeffrey Sachs, who consistently calls for more money to be poured into MDG’s and international aid.
Is it possible, however, that money spent on pipes will help? Perhaps yes but probably not. Effective water management requires good institutions — i.e., a framework for the formation and enforcement of local rules and norms that will deliver safe and sustainable local supplies. After all, how useful is a well without a means of allocating its water or maintaining its flow? How safe are pipes when they carry water of unknown quality? How sustainable is supply from an overdrafted aquifer?

The trouble with Target 3 of Goal 7 (and other targets, you can be sure) is not just that it has been reinterpreted to meet the needs of bureaucrats (rather than the poor), but that its proponents think that money alone can deliver results.

**Bottom Line:** MDG warriors, by emphasizing money over institutions, are unlikely to deliver safe and sustainable water. Hopefully, we won’t have to wait until 2015 for them to learn that.
Jane Steen • a year ago

Reading this from year two thousand sixteen makes me wonder if MDG warriors already learn to deliver safe and sustainable water. May the government and people with the abilities to make water safe and sustainable do something that will benefit everyone. I hope that every person will have access to clean water, rich or poor.

David Foster • September 10, 2008 @ 10:07am

Thanks David Zetland. You have made an important contribution but only touched the tip of this iceberg. Municipal water in India, for example, is priced so low that revenues rarely cover the operating costs much less the capital costs of drinking water supply. As a consequence, there is never enough
money to maintain the water lines and

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PekeCMS  September 10, 2008 @ 9:24am

When I read about this issue it reminded me of Corruption. The reason why I say this is because many corrupt governments and people create technology or any infrastructure just to present it and so the public believe they are actually doing something. In reality, these creations, in this case pipe systems, are simply being created by the thousands, while administrations aren't really working to make sure these pipe systems truly benefit the environment. The main opportunity cost is time, the time authorities spend created badly administrated water system, the more time it will take for the world to truly improve.

Referring to what Camila had said, the United Nations puts it really simple. Things of this magnitude aren't so easy to do. More time and thinking is needed.

William  September 12, 2008 @ 5:46am

Here in Chengdu, China, the water is considered clean enough to rinse one's mouth with, but not clean enough to swallow without boiling once.

Worse yet, when I went to Moscow & St. Petersburg in 2003 I was instructed
not to drink the water, and even to be careful when showering.

**CamilaCMS**  
September 10, 2008 @ 5:28am

To RC: I don't claim that the UN acts only on goals, but I do strongly believe that there isn't enough economic planning and followup that goes along with these goals. That's why few, if any, of the millennium goals will be achieved with 2015 comes around.

What I'm suggesting is that due to the layout of the UN, where all ideas are submitted through vague resolutions, the best way to solve this problem isn't through this organization. As the post in the article claims, beaurocracy plays a big role in hindering a solution.

**Silas Valle**  
September 10, 2008 @ 4:08am

As long as the population of any country keep the habit of using gallons and gallons of POTABLE water to put away excrements and urine, everytime they go to the bathroom, it makes no sense talking about insuficiency of water in the Planet! Water has to be considered as a holly, sacred thing!

Humanity will have to go back to time... when there was "a little house" outside, where one'd deposit his excrements... There will be time that all apartment buildings will have collective bathrooms and water will be ONLY for DRINKING and making medicines, etc...(& some beer...) Neither the Amazon River is enough for the wastefulness of water...
we have in the occident.

Live and you shall see: In a short future we will no more waste gallons and gallons of water and have 2,3,4 or more restrooms in a house, condomin ium, hotel...

Silas Valle

Rozmarija Grauds September 10, 2008 @ 3:26am

I've had a lifelong awe of water, never grow accustomed to seeing its brilliance bursting from a tap. In nature, I can't pass a river view without being mesmerized by the beauty. Over the years I've created ways to use the least amount effectively, have dishwashing down to a science - HAND washing, of course, minimum water maximum sanitary result, all subconsciously done. Showering or washing hair also gets attention, we live in a house and can save shower-water for the garden, or for flushing toilets in winter. Yes, I'm over the top, water is my religion. But then why not, we came from water, we're mostly composed of water, and there's no substitute for it. I don't like drinking it from a paper cup, must SEE its magic.

Johnny E September 10, 2008 @ 2:31am

So what do you think of T. Boone Pickens' plan to acquire everybody's water rights so he can sell water back to them, at a huge profit of course?
Peter Schulze  
September 10, 2008 @ 2:14am

Without wishing to suggest apologies for corruption etc., I'm basically with RC. Will all of you who are enjoying taking easy potshots please forego the use of pipes for a few weeks.

Oh, and in common parlance sustainable doesn't mean anything anymore, or at best means "not as bad as the sorry current situation." It certainly doesn't "capable of being sustained indefinitely."

RC  
September 10, 2008 @ 1:07am

Thanks for responding (#21) to my questions (#8).

As for Camila's argument (#17), I doubt anyone at the UN thinks that the MDGs are enough all by themselves. I think the idea is to lay out some identifiable goals. That's not a bad place to start.

David, your point that the wrong measurements are being used to measure progress with MDG 7, target 3, reminds me of JK Galbraith's "The Affluent Society" -- along with a slew of recent economic literature on happiness -- which points out the fallacy in relying on broad economic indicators like GDP to measure progress or development. Seems to be a reoccurring theme these days: how do we define progress? You seem to have good suggests for how to do so in the area of clean water.

Jeffrey  
September 9, 2008
As Zetland points out, most international development projects are this way. We spend millions and millions, and much of it goes to bureaucrats and US/European consultants. That's not to say we shouldn't have such programs—we just need a massive adjustment in how they're administered. I fear politics will win out, though, and policies will suffer as a result. Par for the course in 202.

Jim

September 10, 2008 @ 12:44am

"His idea of a reachable goal that outside agencies can achieve is "a framework for the formation and enforcement of local rules and norms that will deliver safe and sustainable local supplies."

How would it be possible, without colonization, for outside agencies to

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CamilaCMS

September 9, 2008 @ 9:21pm

The solution to the global problem of attaining fresh and usable drinking water isn't as easy. In fact, the UN makes this problem sound extremely simple. As the article explained, it isn't enough to throw money at the problem, which is what many politicians suggest. Sure, wells may be drilled and pipes installed. However, the next big step is
If villagers and others who populate isolated areas of the world aren’t educated, they won’t use newly installed resources wisely. In fact, this will lead to well contamination, if they are cooking or cleaning with water within 30 feet of the well. So when the United Nations gets together to discuss the Millennium Goals and decides that providing fresh water should be available for everyone, they help beaurocrats sleep at night because this is an issue that they can throw money at and the UN also feels that they just made a big step to make a difference in the world.

But what most politicians and beuarocrats don’t take into consideration is process that leads to the desired outcome. Stating a goal to be acheived in 15 years is not enough. And as the Millennium Goals deadline approaches, it won’t be hard to identify why the world is still very similar to the day that these plans were made.

Captain Democracy September 9, 2008

As an Architect and graduate of U.C. Berkeley I spent some time at the U.C. Berkeley Richmond Field Station with the BIO-ALGOL Research Group and they had an experimental working model of transforming city sewage into algae and fresh water and methane gas with fertilizer. The idea was to pump L.A., San Diego, San Francisco, and Sacramento sewage into the desert and substitute gray water with farm water which would be pumped to the cities, what happened?

Dr. John Benaeman P.H.D. (Chemistry) from Switzerland was in charge. Can you find him and interview him?

www.CaptainDemocracy.wordpress.com

George September 9, 2008

So-called sustainable buildings want to push their certification by saying they capture rainwater. You can at home too. But this means less goes into the ground and into the rivers. How does this help?

SP September 9, 2008

Potable water is getting scarce
everyday and is a serious problem. Population is not really as big a problem as water is. In the context of India, in spite of its high population density and more than 1 billion people, theoretically all the citizens can be accommodated in a single large state of India if they are all housed in 4 storied apartment buildings which has 16 apartments each. Yet that state will have population density less than New Delhi.

But the problem of potable water is much greater. Already in Bangladesh and Indian states like West Bengal, the aquifer has gone so low that the water contains too much natural Arsenic. This is causing numerous deaths.

David Zetland       September 10, 2008 @ 4:50pm

Thanks everyone for the really amazing comments. This post and the comments show what the whole web 2.0 thing was all about.

@Johnny E -- Check out this post on Pickens (http://aguanomics.com/2008/08/easy-pickens_06.html). He's definitely exploiting existing institutions.

Peter Douglas       September 9, 2008 @ 8:32pm

I've visited many places where tap water is not drinkable. Instead we boil it then drink it. Having water in your house is a lot easier than walking miles to carry water back.

Also, when people talk about 'pipes' I
think that is shorthand for a water infrastructure.

Cyril Morong  September 9, 2008
@ 8:32pm

I would like to know what professor Zetland thinks of a new movie (documentary) out now called:

**Flow: For Love of Water**

The Plot: A documentary that addresses how dwindling resources, pollution, privatization and other factors are affecting the world water supply. (from IMDB)

DRR  September 9, 2008
@ 8:28pm

It would be scary if the very same analogy was applied for blood transfusions and scarier if it was true.

i.e the desired outcome (no disease transmission) is not the one measured- (oops we did not check for that one)

PedroCMS  September 9, 2008
@ 11:34pm

@Carl Hutlberg

If you have read any of the other posts, you might realize that everyone agrees that money apparently is not the issue. Therefore, taxing is useless.

Installing useless pipes is just as bad as not installing them. Money can only solve so much of the problem. After that
point, people need to be educated and institutions must be proved capable in managing this new investment. It's like buying a your mom a brand new iPod without even teaching her how to use it. If you buy it for her and never see her again, it's going to be up to her to figure it out. And that's not going to be very productive.