

# COMMENT

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A girl drinks water drawn from a river in Ethiopia, where some 49 million people lack access to safe water.

## Wall Street's thirst for water

Moves towards a global water commodities market must be stopped. It will push the price of food far beyond the peaks of the past five years, warns **Frederick Kaufman**.

Early last year, I published an article in *Foreign Policy* that explained how Wall Street profits from hunger. I traced the history of financial markets in food and noted how the prices of maize (corn), soya, rice and wheat had broken records three times in the past five years<sup>1</sup>. I examined the impacts of climate change and biofuel mandates on the grain futures markets, and argued that a global food-pricing system that once benefited farmers, bakers and consumers had been undermined by financial derivatives created by investment banks.

These commodity index funds effectively

destroyed the traditional 'price discovery' function of the grain futures exchanges in Chicago, Kansas City and Minneapolis, and turned these markets into profit engines for banks and hedge funds while driving up the price of our daily bread<sup>2</sup>.

Although regulation of global food derivatives has been promised, years have passed and nothing has materialized. In Washington DC, abuses of commodity markets and other fiddles resulted in 30,000 pages of new regulations: the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Predictably, implementation

of these laws has been challenged in court and stalled. Even if the regulations make it beyond the Beltway, there will be plenty of room for exceptions for the biggest banks.

Therefore, it is wise to consider what global resource will be the next financial derivative. What could be more catastrophic than betting on the world's food supply? What about our water?

Speculators can already bet on snow, wind and rain through weather-related futures contracts bought and sold on the Chicago Mercantile Exchange. The market value of weather grew by 20% from 2010 to 2011. ►

► But the sector remains small — a paltry US\$11.8 billion. Still, weather futures indicate how restless Wall Street has become to transform Mother Nature into the mother of all casinos.

Some environmentalists argue that putting a price on fresh water may be our best bet to save the planet's supply. The more it costs, the less we will waste. In fact, the financialization of precious resources underlies the Economics of Ecosystems and Biodiversity (TEEB), an international initiative hosted by the United Nations Environment Programme and supported by the European Commission, Germany, the United Kingdom, the Netherlands, Norway, Sweden and Japan. TEEB aims to calculate the worth of ecosystems down to the last trillion dollars, riyals or renminbi. And then there is the PES movement — payment for ecosystem (or environmental) services, which refers to such things as the air we breathe and the water we drink. Among the many supporters of this concept are the World Bank and the UN Food and Agriculture Organization. As TEEB's 2010 report for business puts it: "Modern society's predominant focus on market-delivered components of well-being, and our almost total dependence on market prices to indicate value, means that we generally do not measure or manage economic values exchanged other than through markets."

Wall Street's success in cashing in on the food bubble, Washington's inability to regulate global derivatives and the push to commodify nature through TEEB and PES converged into a single focus this summer, when drought descended on the United States. With it came a slew of doom-laden social, environmental and economic predictions: there will be 3 billion "water-stressed" people on Earth by 2035; water shortages will become chronic, wildfires will be pervasive, monsoons will be even more unpredictable; and snow run-offs will radically decrease owing to increasingly sultry winters.

At the same time, water is becoming essential to a widening variety of industries, from hydroelectric power and fracking to beer brewing and semiconductor manufacturing. Hydrologists warn that water tables are dropping across Asia. Political scientists predict squabbles over the ownership and use of Himalayan rivers, and every water-well driller in Nebraska knows that the Ogallala aquifer under parts of the midwestern United States is declining at an alarming rate.

The implications are dire: the destruction of aquatic ecosystems, the extinction of innumerable species and the risk of regional and international conflicts — the much-dreaded 'water wars' of the twenty-first century. What will Egypt do when Ethiopia

dams the Blue Nile? What will happen when Yemen becomes the first country to run out of water? The short answer: nothing good.

### CASHING IN

Investors of all stripes adore the apocalyptic vibe. Within the interstices of violence and chaos there will be money to be made. These days, the biggest profits do not come from buying or selling actual things (such as houses or wheat or cars), but from the manipulation of ethereal concepts like risk and collateralized debt. Wealth flows from financial instruments that are one step away from reality.

Investing in a water index is now more popular than ever. There are more than 100 indices<sup>3</sup> that track and measure the value of stocks of companies in water-related businesses, such as utilities, sewage treatment and desalination. Several offer healthy returns (see [go.nature.com/zrl4qo](http://go.nature.com/zrl4qo)).

As a result, the World Bank and the International Monetary Fund — both always on the lookout for market-based security for the billions of dollars of credit they extend — have been pushing countries to privatize their resources. These include the lakes, streams and reservoirs of Argentina, Bolivia, Ghana, Mexico, Malaysia, Nigeria and the Philippines (see, for example, [go.nature.com/iuwp8m](http://go.nature.com/iuwp8m)). What better guarantee of prosperity than a rush of multinationals determined to generate revenues from something no one can manage without?

So this summer, as cornfields from Ukraine to Kansas withered, as bacon shortages made headlines and dairymen fed candy to their cows, a new message congealed: the world's next great commodity will not be gold or

*"Within the interstices of violence and chaos there will be money to be made."*

grain or oil. It will be water. Useable water. Although collecting stakes in indices of publicly traded companies is nice, and water certainly generates predictable profits, wouldn't it be more efficient if it could be translated into a cash equivalent? Perhaps, plotted the hedgers and speculators, there should be a commodity market in water, as there is for gold and grain — a futures exchange in which assurances to deliver or accept water on some specified future date can be traded like cash.

In certain respects, water is a likely candidate for a futures contract on a commodity exchange. First, it meets the requirement of fungibility — the commodity pumped from one lake or river or stream is pretty much the same as that collected from an iceberg, extracted from an aquifer, or collected in a rain barrel. And water will soon meet the second requirement of commoditization: it is becoming increasingly liquid, as in

convertible to cash. Most obviously, water is global. River-basin management is as hot a topic for the Volta as it is for the Senegal<sup>4</sup>. From a money perspective, there is no difference if the river is Spain's Guadalquivir, the French Rhone, the Niger or the Sacramento in California.

Financial forecasters perceive that much like traditionally traded commodities — precious metals, for example — the useable water of the future will be so scarce as to need to be mined, processed, packaged and, most importantly, moved around the world. And they know that the demand will not go away. That is the thrust of the thinking behind a global water futures market.

### HIGH STAKES

The year 1996 marked a Rubicon in the history of water and money. The water from California's Westlands irrigates an estimated \$1-billion-worth of food a year; at 2,000 square kilometres, it is the largest agricultural water district in the United States. In 1996, the district introduced an electronic bulletin board for farmers to buy and sell their rights to Westlands' water from their home computers. Trading water rights from a laptop is now a given, just as commodities that once could be bought and sold only on the trading floors of Chicago or Kansas City are now routinely trafficked by mathematics PhDs at hedge funds in Connecticut. If and when water becomes an exchange-traded derivative, it will join Brent crude, jet fuel, and soya bean oil — and be traded any time, anywhere, by anyone.

Making money come out of the tap means that fresh water must be given a price anywhere it is traded — a global price that can be arbitrated across the continents. Those in Mumbai or midtown Manhattan who understand the increasing value of water in the world economy will speculate on this undervalued 'asset', and their investments will drive up the cost everywhere<sup>5</sup>. A water calamity in China or India — and the food inflation, political instability and humanitarian crisis that will surely follow — will reverberate in price spikes from London to Sydney. This is how bankers will profit.

Economists have begun to model a global water-based futures market featuring financial puts, calls, shorts, longs, exchange-traded funds, indices of indices, options piled on top of options, and all sorts of opportunity for over-the-counter swaps. Flood-insurance companies will certainly want to buy stakes that could mitigate their financial risk. In fact, every corporation that conducts its business in a flood plain, anywhere, would probably participate. Farmers will want to hedge their bets that it will or will not rain, as will frackers and fishermen. As for the speculators, we know who they will be.





A woman in Jamam refugee camp in South Sudan holds up a container of water from a makeshift well.

C. ALS/PANOS

Currently, no one is trading water futures, but it won't take much to spark the market into life. When the state of Texas tallied up to \$10 billion in economic losses due to the recent drought, academics set about theorizing how the water of the Rio Grande might be indexed for a futures market<sup>6</sup>. After the floods in Thailand last year caused economic losses totalling \$46 billion, Thailand's Securities and Exchange Commission studied the possibility of financial derivatives indexed to rainfall and dams<sup>7</sup>. The semiconductor manufacturer Intel might have been interested — the mud and muck that reportedly halted its chip-making operation in Thailand cost the company up to \$1 billion.

A truly global trade in water futures will have to wait until the financiers come up with a universally adopted measure of water stress. Until then, water futures markets will emerge as local phenomena based on local concerns. For example, in drought-riddled Australia, every element of an indexed futures market is ready to go on the Sydney Futures Exchange (see [go.nature.com/u7hdas](http://go.nature.com/u7hdas)). In the Medinipur and Tumkur districts in West Bengal and Karnataka in India, where the monsoon has become less and less predictable, a south Asian water futures exchange has been conceptualized, to be traded on the Delhi Stock Exchange<sup>8</sup>.

Futures trading will extend from the most pristine rivers to the barely legal effluvia of solid-waste plants. Commodity theorists in Switzerland have taken the first steps in setting up markets that will trade in water

futures derived from sewage. The team calls its concept an ethical water futures market (see [go.nature.com/dq6fm4](http://go.nature.com/dq6fm4)). In my view, it is a financial platform to sell treated water to the highest bidder.

In all of these cases, the futures contracts will emerge from valuations of relative water scarcity or plenitude based on an index of water levels in dams, average precipitation or other indicators and predictors. Ultimately, the financial instrument will have the same basic structure as the index funds which brought unprecedented levels of speculation to the global grain market, increasing the volatility in prices — volatility that futures exchanges were originally meant to blunt. After all, if the natural-gas industry can pay more for water than soya farmers, then the gas drillers will get the water and the soya will not.

#### PRICED OUT

The reverberations of a global water futures market can hardly be imagined. This much is clear: a water betting game will leave crops thirsting and push the global price of food far beyond the peaks of the past five years.

The good news is that, unlike the failed attempts to regulate the derivatives markets in food, something can still be done in the case of water. There are plenty of examples of valuing water outside the realm of pure commodification. One of the best examples has been developed in the Ruhr basin in Germany<sup>4</sup>. This riverine resource is managed not by the invisible hand of the market, but by a policy-creating body called the Ruhr

Association. Cities, counties, industries and enterprises in the region are represented by associates and delegates. A total of 543 stakeholders negotiate water-abstraction fees and pollution charges. The politics may be messy, but it works. Unfortunately, that is the way with democracy.

There is no easy panacea for the world's water needs, least of all the global derivatives business, which has proved that it is not to be trusted with mortgage-backed securities, much less our most precious resource. There is no need to initiate a futures market in water only to create yet more financial madness that seems to resist all attempts at regulation. This time around, let the business stop before it starts. ■

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