Meeting in the Middle:
The Rio+20 Conference
I magine if all the Californians running Google, Apple, and Intel had to move their operations to Milwaukee, not for the weather, but for the water. Recently, Milwaukee cut its water rates, despite an aging infrastructure and standing regulatory authorization for higher rates, in order to attract new businesses and replace those water-intensive industries of old which used to reside on the shores of Lake Michigan, such as breweries and tanneries. There is a lot of water in the Great Lakes, not so much in California. Milwaukee is coping with stranded assets through economic incentives, emphasizing its comparative advantage and betting that it can generate economic growth.

Shifts in migratory patterns, driven by water shortages and escalating costs, are some of the transformations outlined in Steve Maxwell’s very readable new book, *The Future of Water: A Startling Look Ahead*, written with Scott Yates. It surveys the United States and the globe to assess trends and potential solutions to what he does not hesitate to call “an inexorable planetary crisis.” A growing population, poverty, government water and energy subsidies, failure to price the resource, overconsumption, and an overall failure of political will and governance have contributed to this crisis.

Maxwell writes, “Water will shape the full spectrum of economic, political, and social trends as well as our decisionmaking. We will all begin to view water more as a precious resource and less as a free commodity to be exploited and wasted.”

Maxwell brings an interesting perspective to the subject since his day job is evaluating the massive industry, the business of water, which is estimated as being somewhere between $500 billion and $600 billion per year worldwide. This sector services the vast utility and infrastructure system which gathers, stores, treats, distributes and disposés of water and wastewater.

Notwithstanding his slightly Malthusian sentiments, relative to population growth and poverty, Maxwell describes a great paradox in that “the future looks very bright for the wa-

ter business.” There is a pressing need for “bright and innovative ideas, new and advanced technologies, and more integrated approaches to solving the broader water challenge.” He offers a comprehensive tour of the many possibilities around the globe. His inner optimist is in tension with his inner pessimist: “It’s sometimes easy to lose heart, looking at the dire water situation around the world today.” Still, Maxwell recognizes and appreciates the many opportunities for amelioration through entreprenenurship in technology and policy.

As an investment advisor, Maxwell has a keen eye for technological innovations such as the new membrane filtration systems developed by companies in the United States and Israel. He understands the water savings potential of new toilets, dryers, washers, and irrigation systems. He appreciates emerging water markets allowing for trades between cities, farmers, and even NGOs such as Trout Unlimited in the United States and Australia. He appreciates how energy-intensive desalination plants might make sense in coastal communities or Saudi Arabia but not in other places.

Maxwell believes water has become a significant factor of production, along with labor, capital, and energy; and he advocates evaluating the water footprint of production and the entire supply chain, paying close attention to the concept of “virtual water” throughout a product’s life cycle. He understands that there is no such thing as wastewater, only water that is wasted which can be reused or recycled both at home and in businesses. He also provides a useful overview of the linkages between water and energy and points out that their nexus may present difficult choices or trade-offs in the real world.

Steve Maxwell confronts, forthrightly, the economics of water, which is a mess both at home and abroad. Water utilities are natural monopolies which are generally insulated from market forces unlike oil and other commodities. In contrast, electric and gas utilities, regulated monopolies, are investor-owned and consistently and robustly maintain their capital assets and pursue efficiency and conservation through demand-side management actions. In the United States, their municipal character impedes utilities from investing to prevent water shortages, allowing for decay of in-
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Maxwell relates the story of the
Washington Suburban Sanitary
Commission, serving one of the
wealthiest parts of the country, the
Maryland suburbs of the nation’s
capital. WSSC experienced a mas-
water main break just before
Christmas 2008. A 66-inch pre-
strained concrete underground water
main burst, setting off a torrential
flood that deluged a major artery
and stranded motorists. Helicopters,
boats, and fire trucks came to the
rescue, as water was restored to thou-
sands of customers.

This was just one of 1,709 breaks
that year, and WSSC was on a 200-
year replacement schedule for its
5,500 miles of water mains. Earlier
in 2008, WSSC’s commissioners had
rejected a new fee of $20 a month per
customer to acceler-
ate pipe replacement
because they said the flat fee was unfair to
low-income custom-
ers. Fair enough. But
they failed to change
the fee to a sliding
scale. “They decided to ask for mon-
ey from the federal stimulus package
instead; however they didn’t get any,”
writes Maxwell.

If this is the case in the affluent
Washington suburbs, imagine the
challenges in China, India, or Ban-
gladesh. Maxwell must be forgiven
his momentary bouts of pessimism.

“Technological advances certainly
matter, but what matters most is the
ways in which humans use and pay
for water,” argues Maxwell. “Right
now, most people in most countries
don’t value water very highly, even
though they know that without it
they would die.” As he opines, “The
most important job utilities around
the world may have in the coming
decades is convincing people that
water is valuable—and that it is reason-
able to pay more for this luxury than
the bargain prices we have tradition-
ally taken for granted.”

Maxwell reproduces a table from
Global Water Intelligence, a trade
press publication, which lists average
water prices in terms of U.S. cents
on the gallon. It basically confirms
that northern Europeans pay twice
as much for water as do Americans.
They also use less than half of what
Americans consume. Quelle surprise.
European water systems also have
larger capital surpluses for capital in-
vestment.

Applying the lessons of eco-
nomics and incentives to wa-
ter management is the aim of
Dr. David Zetland in his fine new
volume, The End of Abundance: Eco-

demic Solutions to Water Scarcity. He
believes the water sector can encou-
rage better stewardship and a greater
degree of social harmony by substi-
tuting pricing and market allocation of
limited water sup-
plies for political
management.

Right now, water is based on the price
of delivery, claims
Zetland, not its scarcity value. In
this he may be overly generous, given
the growing infrastructure invest-
ment gap in this country. Neverthe-
less, his central argument is correct:
“Shortages can be ended much more
quickly by a change of incentives
than supply-side actions to build a
desalination plant or transfer water
from neighbors who probably can’t
spare a drop.”

He adds, “The end of abundance
means the supply side/cost recovery
model of water management no lon-
ger delivers the results we want, but
that model still dominates the busi-
ness — from California to China,
Florida to Fiji — and it will cause
trouble until we change the way we
manage water. Economics offers an
alternative focus on balancing supply
and demand — whether there’s too
much supply or too much demand.”

Zetland points to Santa Barbara
during the drought of the 1990s,
when its reservoir was shrinking.
Limiting lawn watering, 50 percent
of residential water consumption in
the area, and car washing was tried.
But once the water agency instituted
steep increasing block rates, result-
ing in prices 200 percent higher at
the upper rates of water usage (lowest
rate $1.09 per unit, highest $24.43),
changes in behavior were “fast and
significant — gross water consump-
tion dropped from 25 to 17 m³ [cu-
bic meters] per month.” Moreover,
consumption levels remained low.
“After the drought ended and prices
were lowered, consumption was still
only 60 percent of pre-drought lev-
els,” says Zetland.

This is not to stigmatize turf or
backyard pools, but Scottish lawns
and recreational swimming are lux-
ury items in arid areas and should
bear the cost of scarcity in the price
of water. Moreover, low water rates
are basically middle- and upper-class
subsidies which, in the developing
world, end up depriving poor people
of adequate utility services and driv-
ing them into the hands of exortion-
ist water vendors who often charge
as much as 25 times subsidized tap
water, according to Michael Rouse,
former president of the International
Water Association.

Steve Maxwell and David Zetland
have provided the water sector and
the general reader with very useful
information and insights for reform.
All that is lacking is the political will
necessary to achieve this end.

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