



Water Is Not the New Oil

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Water is a prerequisite for human life and healthy ecosystems, as well as a necessary processing ingredient in most of the goods and services contributing to global GDP—from food and clothing to technology and energy. Oil currently plays a critical role in the economy, but mankind can survive without it, as it has in the past, and as it will in the future when oil reserves are depleted. Nothing, however, can replace water: it is the fundamental frequency with which all human endeavor resonates. Although water scarcity has led to regional tensions and national security concerns, its comparison to dwindling oil is short-sighted. The complexities surrounding water are enormous, encompassing policy, local and global politics, commerce, corruption, international law, human rights, poverty, health, demographics, ecosystem services, biodiversity, geography, geomorphology, and climate. To compare water to oil is to recognize neither the depth of these complexities nor the danger of mismanaging or underestimating them. Why, then, has investment in this sector lagged behind others of lesser import, despite all the attention paid to it by governments, multilateral institutions, and non-governmental organizations?

Surely it is not for lack of evidence of financing opportunities. These can be broadly imagined by naming the risk factors: of the 2.5% of the Earth's water that is fresh, 30% is groundwater and less than 0.4% comes from lakes, wetlands, and rivers—these four sources account for most of today's withdrawal but just 0.9% of the planet's water. Moreover, available supply has diminished due to unsustainable withdrawals and contamination. Meanwhile, global population has doubled in the past 50 years while GDP has grown by an order of magnitude. Wastage is problematic: it has been estimated that at least 20% of available water in the EU is wasted, mainly from inefficient agriculture and urban infrastructure leakage (European Commission, 2007). Furthermore, inconsistent pricing policies, subsidies, and lack of a framework for valuing environmental services at domestic and international levels complicate the need to incentivize investment. The greatest unknown in this already unwieldy equation is the pace of climate change, which will likely bring about variation in the hydrologic cycle not seen in the past 100 years—about the timeframe of reliable data collection. Testing procedures for climate models incorporate past physical data for conditions that may be quite different from those to come, making it more difficult to narrow the gap between best- and worst-case scenarios.

Thus the risks inherent in water sector investment are inarguably diverse. However, not only are the opportunities real, but the global and sectoral sweep of our water challenge impels investors to address these opportunities for reasons of both social stability and business risk. Policy, of course, is one filter that adjusts the panorama of

investment risk. Yet governments alone cannot provide the necessary focus, innovation, and market mechanisms needed. Investors should be partners in public/private innovation centers similar to those found in Singapore and Israel, both strong economies with technical workforces and urgent water needs. Outside this arena, given the right decision-making tools, investor involvement includes roles as equity holders and lenders. Before committing funds, investors need country-specific, fact-based cost curves describing market solutions for broad categories of demand, including agriculture, industry, and municipalities.

The 2030 Water Resources Group makes an important contribution toward this end by calculating payback curves for a spectrum of options for India, China, South Africa, and the state of Sao Paulo—together projected to account for 42% of global water demand by 2030. For India, a cost-effective strategy for filling the projected gap between available supply and demand would focus on improving agricultural water use efficiency (“crop per drop”) via micro-irrigation methods, improved drainage, optimized fertilizer usage, integrated pest management, no-till farming, and seed development. The market for micro-irrigation systems, for example, is valued at \$400 million and grew 15% annually from 1999 to 2006. The value in adopting such systems includes reduced water consumption and salt intrusion into ground aquifers, reduced fertilizer requirements, and increased yields. Investor participation might include equity holdings in companies along the micro-irrigation value chain (including installation and maintenance). Another entry point would be as micro-financiers, as drip technology has a capital cost of \$1,000 per hectare—beyond the reach of smaller farms, yet has a payback period of just one year. In China, industrial and urban water demands are growing faster than agricultural demand. A cost-effective strategy would include water-saving regulatory reforms (with annual net savings of \$22 billion), and efficiency measures coming from the thermal power, wastewater, paper, textile, and steel industries (with annual net savings of \$24 billion) (2030 Water Resources Group, 2009). Industrial efficiency measures also play an important role in Sao Paulo and South Africa.

Clearly, the implications of our water challenge underline the need for investors to fluently speak the language of environmental risk. Companies using water for their operations or supply chains will be increasingly at odds with municipalities or rural communities who need it for health and survival. Moreover, because water connects our social, economic, and environmental ambitions, the imperative is on developing sustainable solutions that decrease waste, increase efficiency and information flow, and achieve improvement in one water management area without detrimental effects in another. More studies of the type previously mentioned are needed, with an expanded analysis of the effect of climate variability on costs, and further consideration of the US, Europe, and Japan, where water scarcity issues are well-documented and critical. Water is not the new oil, but the original source of production, with nothing able to take its place. The grave challenges it presents for our future must be met with inspiration. Our best stewardship is required, with investors at the vanguard.

References

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Biography

Dr. Chan is the founder of Chan EC, an environmental consulting practice that helps develop sustainable strategies for responsible companies. Her research and interests include the role of sustainability in creating new markets and the effects of global climate change on corporate growth and competition strategies. A former NASA Global Change Fellow, she holds a PhD in Oceanography and an MBA with a concentration in corporate strategy. She serves on the advisory board of the US Pan-Asian American Chamber of Commerce, as well as on the editorial board of the *Journal of Environmental Investing*.