Conservation

Classroom Resources

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> " This water focus isn't trendy green consciousness or corporate altruism, although in the case of Coke, it is vitally important PR. It's business. And in this instance, business is actually ahead of politics and ahead of popular awareness. "

Purple Pipes
By Charles Fishman

. . . and other tales of innovative water conservation in unlikely places.
Our relationship to water is about to shift in fundamental ways.

SUMMARY QUESTIONS

worksheet available online

1. Briefly describe the creative water solution developed by the city of Salisbury. (answer: Rather than collecting storm runoff and piping it 6 miles into the ocean, they started filtering it through wetlands and then into an aquifer where it is clean enough to be used for washing wool, irrigating commercial nurseries, etc.)

2. What do purple pipes signify? What is unique about the Mawson Lakes development? (answer: Water that is not potable, but clean enough for other routine use. Each of the 4,500 homes in Mawson Lakes has purple-pipe water in addition to potable water.)

3. How did the Aria hotel address its water concerns? (answer: By working with Delta Faucet Co., they designed a new shower head that reduced the flow from

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BUILD YOUR OWN GLOSSARY

▶ potable

▶ purple pipes

▶ reverse osmosis

2.5 gallons per minute to 1.5 gallons per minute, which when installed at the hotel could save 2,000 gallons of water an hour!)

4. What was the water issue that the Celebrity cruise ships solved with rocks? (answer: For ice cubes that keep the buffet line food chilled, water must be made or loaded onboard, ice makers must run nonstop, ice beds must be laid out and replenished, and melt-water must be drained, treated, and dumped overboard.)

5. IBM's Smart Water system at their Burlington VT microchip plant was designed to answer what question, and what was the answer? (answer: "What we use water for, or where do we use water," not necessarily, " how do we use less water." They figured out that 85% of their water use was towards the ultra-pure water for microchip production – so that became their big target, rather than focusing on the toilets in the building)

6. What did the IBM smart water system discover could be solved by a new pipe system? How did they do it? (answer: One area had to heat cold water for turning into ultra-pure water, another part had to chill warm water for cold water for air-conditioning etc.) How much water did they save with their new system and what did that equal in terms of $$$? (answer: They cut their water use by 29%, which saved $740,000 in water bills. That led to saving $600,000 in chemical filtration, $2.3 million in electricity and energy costs.)

7. Why is Coca-Cola focusing on water, and what have they done between 2004 and 2012? (answer: They've received negative criticism over water exploitation. They reduced their water used in production by 19%, or 17 ounces per liter of drink produced.)

▶ DISCUSSION QUESTIONS

worksheet available online

1. "Salisbury makes about A$1.6 million a year by cleaning up polluted water." Who pays the town of Salisbury this money? Would this business model be possible in other places? Why or why not?

2. What is your reaction to the author's statement, "In fact, regardless of resources, it's crazy to use drinking water for things like watering soccer fields or flushing toilets. It's just what we've gotten used to." Why do you think we've "gotten used to" it? What are the hurdles we need to get over in order to think about water use differently?

> In terms of water, Intel's profitability from 2005 to 2009 fell 57% per gallon. That's a measure you don't see on a Bloomberg terminal.

3. Do you think it's possible "to dispel the notion that there is a trade-off between luxury and environmental impact"? How?

4. Discuss the "mind-flip" suggested by the author: what is the difference between, "How do we use less water?" and "What are we using water for?" Discuss how each of the four solutions of the article relates to the mind-flip.

5. Do you agree that making water technology 'smart' (like highways, cell phone networks, electric grids, etc.) and close monitoring "creates an imperative for curiosity and innovation"? IBM Burlington created a system for measuring water, examined the data, and then came up with innovative way to make better use of their water – in the end saving them lots of money and reducing their environmental impact. Think of other examples of making 'smart' systems and how measuring or monitoring can lead to new innovations. *(Hint: Think civil engineering, environmental engineering, landscape/building architecture, urban planning, and this technology: http://www.conservationmagazine.org/2013/03/knowledge-is-power/)*

6. What do you think about Coke's change in "Raw Materials" reporting? What is your reaction to the author's statement, "This water focus isn't trendy green consciousness or corporate altruism… It's business. And in this instance, business is actually ahead of politics and ahead of popular awareness."

ADVANCED ACTIVITIES

1. **Where Does the Water Go?:** At the beginning of the article, the author states that "Outside of farms, Michell Wool is one of the largest single users of water in the state of South Australia." Who are the other major users of water in the state/country? How much water do farms use? Who are the major players in your own state/national water use? In which areas should we focus on water conservation? Design an infographic to communicate your findings. *(Example: http://www.fastcompany.com/1741509/water-world)*

2. **Psychology and Economics of "Green Luxury" and "Green VERSUS Luxury":** The Aria hotel is part of the "environmentally sensitive" development, CityCenter, in Las Vegas. The water-saving shower heads that were designed to deliver a luxurious shower while reducing the water flow to 1.5 gallons per minute were deemed a success. Can you find a business report on how much money the hotel has saved, or is projected to save, by this innovation? Has CityCenter enacted any other environmental innovations in different areas of building planning? What is their business model for "environmentally sensitive" development? Do you agree that we can dispel the idea that there is a trade-off between luxury and environmental impact? Look into other green building/green developments closer to home. *(Hint: Bullitt building in Seattle, SustainabilityPartners.com)*

3. **Technology Brainstorm:** In order to pursue a "smart-water culture" the author encourages a mind-flip – "Not just: How can we use less water? but: What are we using water for?" The rocks-for-ice solution on cruise ships is an example of this since it eliminated an entire category of water usage. Can you creatively think of any other ideas for this type of water solution (Hint: toilet water sink, or rain water to wash your car)? Look around your home, your campus, place of work, and surroundings for inspiration. Search the web for ideas that other people have come up with. Develop a plan (marketing, business, or engineering) to put a solution into place.

4. **Water Economics:** "In terms of water, Intel's profitability fell 57% per gallon used. That's a measure you don't see very often, even on a Bloomberg terminal." The author mentions that the websites of Coca-Cola, Intel, GE, and IBM post the amount of water each of those companies uses each year, often in detail. Go check it out! Each group takes one company (search for additional companies that report water use), do a cost comparison, a similar profitability per gallon metric. Scale to company size. Who is doing well? How? Why? Are their motivations purely based on bottom-line budgets, or are there external incentives in place?

5. **Case study of Going "Water Neutral":** Find out how Coke aims to become "water neutral" by 2020, as stated by CEO Muhtar Kent. Is there a plan and is it available on the web? How are they going to reduce their water use when "[a]lmost all of Coke's products end up as pee"? Start your investigation by finding out what changes they made in order to "cut the amount of process water per liter of drink by 17 ounces," a 19% improvement.

6. **When Business Outpaces Policy or Public Awareness:** The author makes the argument that the companies in this article have made strides in innovation toward smarter water use due to good business rather than political or environmental incentives. Do you agree? Can you find other sectors where environmental solutions have been a product (or byproduct) of business interests rather than societal, moral, or political pressure? (e.g. window insulation, low-flow showerheads in homes). Why does the political machinery move so much slower than private? *(Further exploration: Compare National Park Service/EPA to TNC/WWF to Paul Allen Foundation/Gates Foundation. Who gets conservation done? Why? How?)*

Further Reading: *The Big Thirst* by Charles Fishman