

UC SANTA BARBARA

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## The Benefits of Beverage Policies

Would you be surprised to learn that the contents of beverage bottles and cans are a bigger contributor to greenhouse gas emissions than the containers themselves? The researchers who discovered that fact sure were.

In a study of nearly 1,000,000 liters of beverages sold and consumed on the UC Santa Barbara campus in a single calendar year, the liquids were responsible for 68% of the climate impact and 97% of the water impact. The team also found that aluminum containers, so often promoted as a better alternative to plastic, in fact emitted more greenhouse gas per liter.

“We were also surprised to find that replacing all sugar-sweetened beverages (SSBs) with other commercial beverages did not reduce environmental impacts much, and in some cases actually increased them,” said David Cleveland, a research professor of environmental studies and of geography, and corresponding author of the [paper](#) published in the journal *Cleaner and Responsible Consumption*. “This shows that optimizing health benefits may not optimize environmental benefits.”

The study was an undertaking of UCSB’s Healthy Beverage Initiative Research Group. The campus, as does the entire University of California system, has a Healthy Beverage Initiative (HBI) in place that aims to reduce consumption of sugar-sweetened beverages in the interest of improving health. Drinking SSBs, such as soda and energy, sports, milk, coffee and juice drinks that contain added sugar, is known to increase the risk of obesity, diabetes, liver and heart and disease, as well as tooth decay.

The [UC HBI](#), however, also has a goal of increasing the availability of tap water from water filling stations to reduce the environmental impacts of beverages and as a replacement for SSBs. (The UC has a separate policy around eliminating most single-use plastic beverage containers by 2023.)

“There are many ways to implement a Healthy Beverage Initiative, including UCSB’s HBI,” Cleveland said, “but the environmental benefits of the different options are not known. So our main question in this research was ‘What are the potential environmental benefits of different HBI options?’”

The optimal way to get the most overall environmental and health benefits? Replace all commercial beverages with tap water. Not happening, according to Cleveland.

“This is neither a realistic or a desirable scenario,” he said. “The value of this, and all of our other scenarios, is that they show what results can be expected for different HBI strategies, and provide a way to evaluate progress toward goals.”

In total, the team estimated the potential of 12 different HBI scenarios to reduce the environmental impacts of greenhouse gas emissions, fresh water use and plastic pollution. Each scenario had a different combination of liquid beverages (SSBs, non-SSBs, bottled water) and 5 container types. Some scenarios also included tap water in reusable bottles from water filling stations.

The scenario that replaced all other beverages with tap water in reusable containers eliminated almost all environmental impacts, while scenarios that reduced SSBs but increased beverages other than tap water did not reduce environmental impacts nearly as much — or even increased them.

As to potential health impacts, the research also found that of all beverages sold and consumed at UCSB in 2018-2019, 67% were SSBs, while 22% were non-SSBs (such as diet drinks that do not contain added sugar) and 11% were bottled water. The SSBs contained 42,649 kg of added sugar, and the average volume of SSBs consumed by each first-year student contained 60% of the recommended amount of all added sugar in the diet.

Many colleges and universities nationwide are implementing or beginning to investigate HBIs as a way to more actively support health across campus communities. This study, according to Cleveland, will help universities plan and implement HBIs “in ways that optimize both environmental and health benefits that

are most appropriate to the students, staff and faculty on their individual campuses.”

“For people who support the implementation of these initiatives, it’s also important to support increased funding for our public universities, like the UC,” Cleveland said, “so that they are not restricted by the loss of revenue from SSB and other beverage sales.”

The other authors on this paper are Kyle Meisterling, a former UCSB lecturer in environmental studies now with Scope 3 Consulting, and undergraduate research assistants Jacklyn Vo, Kelly Ann Garvey, Hallie E. Brown and Marie T. Tumbleson, all recent graduates of UCSB’s Environmental Studies Program.

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