

## The Problem with Poop

When one thinks of Hawaii's water, a person would picture crystal clear and clean drinkable water; however, is that the truth? According to an article by news.com.au published on February 12, 2018 Hawaii's drinkable water is close to reaching the legal nitrate level. But why is this happening you might ask. It's because of cesspools which are holes underground where untreated human waste is deposited. Some of this waste is making its way into our drinking water, and if this problem is not addressed soon, we could be seriously poisoned from all the nitrate that is entering our bodies. According to this source, it will take the state 1.75 billion dollars to replace all of the cesspools. However, I have a better solution to use graphene filters to remove the nitrate whenever we extract water from underground.

The first solution I have to reduce the nitrate levels in our drinking water is called an anion exchange. An anion exchange is a process that can remove nitrate from the drinking water using water softeners called "resin media" from inside pressurized water tanks. Filtered water is pumped through the tanks and the media will remove the nitrates which are in the water. The village of Blissfield, Michigan, used this process when they were experiencing high levels of nitrate in their drinking water source and it worked very well. It boosted the economy by saving money intended to construct a raw water reservoir which would have stored safe water. This reservoir would have been pumped out and used during times of high nitrate levels in the water. Using the anion exchange process will not only help with the nitrate levels in our drinking water, but it will also help save money.

According to an article published by CNBC.com, when food and waste are broken down in an oxygen free environment, they create a biogas that can be purified into bio methane. This is called "anaerobic digestion." The resulting gas is described as, "pipeline quality, and

completely interchangeable with natural gas.” This process works with any type of waste from agricultural life-stock, sewage sludge, and even organic waste, which is exactly what cesspools contain. Instead of just replacing the cesspools we could also help our environment when doing so. We could use it to fertilize crops, we could use it to power homeless shelters much like some towns in India power themselves using feces. There are many things we could exploit with this process, and I believe that this is the best course of action to help save Hawaii’s water.

Clarence T.C. Ching created Kukui Gardens to help Honolulu’s housing for the community. Like Mr. Ching, I too am concerned with improving the quality of life in this state. This is why I’ve come up with two extremely beneficial ways of reducing the amount of nitrate in the drinking water for my community. The first solution would benefit Hawai’i economically and help save money, while the second solution would benefit our environment and help us by introducing a source of clean energy. Proposing these two solutions should insure that Honolulu will continue to have pristine drinking water 50 years from now.