

Solving the Cayman and Caribbean Freshwater Crisis

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The Cayman Islands and the Caribbean, Freshwater Scarcity

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Recent studies of the oceans have begun to show a real problem with the impacts pollution and global warming are having on small islands. Having grandparents who live on the island of Little Cayman, I became concerned as to how this would affect them. As I researched this issue, on my own, I found that there is a major issue of a lack of fresh water that is currently affecting the Cayman Islands, along with other islands in the Caribbean.

The Cayman Islands is a group of three islands, Grand Cayman, Cayman Brac, and Little Cayman, located in the western Caribbean Sea (*Government, C. I., 2021*). The Islands lie 240 km south of Cuba and 268 km northwest of Jamaica. The Cayman Islands typically have a tropical marine climate, with warm, rainy summers and cool, relatively dry winters.

The beautiful setting is what makes The Cayman Islands extremely popular tourist destinations. Despite appearing as a getaway, there are a few residents who call the islands home year-round. The Cayman Islands has a total population of around 63,131 (*July 2021 est.*), with the majority of the people living in Grand Cayman. The urban population is about 98.9% of the total population; only around 1.9% are rural or employed in agriculture (*The World Factbook, 2020*). The farms on The Cayman Islands are small when compared to its massive urban areas. These farms take up little space and are crammed into smaller areas as only 0.83% of the land on the islands is cultivated. Their agricultural crops are vegetables and fruit. Their major exports consist of turtle products and manufactured consumer goods (*The World Factbook, 2020*). The jobs they have include tourism, banking, insurance and finance, construction, making construction materials, and selling furniture. The average salary in the Cayman Islands is KYD 65,432. "KYD is the currency abbreviation or currency symbol for the Cayman Islands dollar (KYD), the currency for the Cayman Islands. The Cayman Islands dollar comes in denominations of 1, 5, 10, 25, 50, and 100 dollars as well as coins. The currency relies on a fixed exchange rate pegged to the U.S. dollar at \$1 being worth \$1.20 in the US" (*Cayman Islands DOLLAR (KYD) Murphy, Chris B. 2021*) The average take-home earning is KYD 58,839 (Net). The most typical salary is 69,466 (Gross) (*Average Server Salary, 2020*).

The Cayman Islands also happen to have a surprisingly diverse community in terms of race. Its population is 40% Mixed, 20% White, 20% African, and 20% expatriates of various ethnic

groups (*The World Factbook, 2020*). It is important to specify that while The Cayman Islands has its own personal government, running as a parliamentary democracy, although it is still an overseas territory of the UK. The Caymans are a self-governing overseas territory of the UK.

During ideal conditions, The Cayman Islands' family structure is not stagnant. Just like in America, there are many different examples of what a family is. There is no typical family size in The Cayman Islands size can range from single persons to single-parent families, traditional nuclear families, and extended families" (*The Cayman Islands. (n.d.)*). Most families on The Cayman Islands live in cottages along the shore; on the other hand, some families live in large and expensive estates (*Culture of Cayman Islands, Bo-Co*).

Food is also another important part of our everyday lives, so it is important to also examine the diets of those who are living on The Cayman Islands. Most resident's diets consist of three meals per day, and Seafood is predominant (*Culture of Cayman Islands, Bo-Co*). Seeing as Cayman is a group of islands, other than imports every once in a while, the main source of food for The Cayman Islands is seafood fished up around the Islands. "A number of recipes show influences from other Caribbean countries, such as Jamaica and Trinidad, like heavy cake, Jerking, and breadkind. Other common local ingredients include key limes, honey, rum, and coconut (*The Cayman Islands. (n.d.)*). A microbrewery produces beer for local consumption (*The Cayman Islands. (n.d.)*). "

"With food as colorful as the Island itself, the Cayman Islands surpass amongst the rest of the Caribbean when it comes to the culinary scene. Blending and mixing spices, seafood, and fresh bounty to create unique and flavorful dishes, trying the food in Cayman is a reason enough to visit." (*How Cayman Islands' Cuisine Plays A Vital Role In Caribbean Culture?, 28 Jan. 2017*). The importance of local recipes and ingredients mentioned before goes beyond just feeding the locals. The Cayman Islands are before anything else, a tourist destination. So the local recipes and ingredients are used to prepare many different seafood dishes, and these dishes are often sold to tourists and locals alike, making these dishes important to both local's health and wellness, and contribute to the overall economy of The Cayman Islands.

Most families who live on The Cayman Islands have access to affordable education for minors. When it comes to options for high school and college, there are none on the island. So those who want to pursue higher education must go to college on the mainland. (*Culture of Cayman Islands, Bo-Co*). When it comes to access to health care, the families in The Cayman Islands are in luck. Health-care coverage is mandatory on The Cayman Islands! Health facilities include a state-of-the-art hospital a government healthcare complex, and a medical clinic (*The Cayman Islands. n.d.*). Since The Cayman Islands have a relatively small population, most families have some access to somewhat clean water, toilets, electricity, telephones, roads, and local markets.

Even though it may seem like a paradise, those living on The Cayman Islands still face struggles. From trash ending up on the beaches or being deposited there by residents; no recycling or waste treatment facilities; to deforestation (*Cayman Islands Geography 2020, CIA World Factbook. (n.d.)*). There is no shortage of problems that plague those who call The Cayman Islands home. However, there is one issue, in particular, I would like to focus on; the scarcity of natural freshwater resources. The water crisis in the Caribbean region is currently worsening. Many

islands in the western Caribbean Sea, such as the Cayman Islands, are experiencing a lack of natural freshwater resources. Drinking water supplies are currently met by reverse osmosis desalination plants and rainwater catchment (*Cayman Islands Geography 2020, CIA World Factbook. (n.d.)*). This water, however, is still likely to contain water-borne pathogens. It is presently a great concern to many. (*The World Factbook, 2020*). The water crisis in the Caribbean region, including The Cayman Islands, is only worsening. The main factor that contributes to this growing issue is climate change. This issue can affect rural and urban populations, as seen in the many small island nations throughout the Caribbean experiencing a similar plight. Tourism is greatly affected by the lack of water, which causes great financial loss for urban areas. Rural use of rain-fed agriculture on these island nations means that a lack of water can lead to food insecurity.

As water is a vital part of maintaining one's body, water scarcity is extremely harmful to the communities it impacts. This issue affects adult men and women about the same, despite gender if a person goes a long time without drinking water the impact on that individual's body is never good. Symptoms of water dehydration include but aren't limited to "feeling thirsty, dark yellow and strong-smelling pee, feeling dizzy or lightheaded, feeling tired, a dry mouth, lips and eyes, peeing little, and fewer than 4 times a day" (*Nhs Choices, NHS, n.d.*) A lack of water will often lead to Dehydration, meaning your body loses more fluids than you take in. If Dehydration isn't treated, it can get worse and become a serious problem.

Freshwater, more specifically mineral water contains many minerals that provide benefits to human health. These minerals include "calcium, magnesium, potassium, sodium, bicarbonate, iron, and zinc" (*Is Mineral Water More Healthful? Benefits and Side Effects. Medical News Today, MediLexicon International, n. d.*). Each mineral listed provides a different benefit to the human body, being vital to human growth. Therefore, the scarcity of water does impact children much more than adults. Without the proper minerals from freshwater, kids may struggle to develop correctly. As for the elderly, lack of freshwater puts them at great risk.

The elderly are also more susceptible to the water-borne pathogens found in the non-freshwater that they use as a substitute. Of course, the problems of water scarcity greatly affect less developed populations, since they lack any access to a filtration system of any kind, they are forced to drink unfiltered saltwater or rainwater, They are, therefore, at extreme risk when it comes to being exposed to water-borne pathogens. This issue makes the islands that are experiencing this current problem a less safe environment for people to live in. Since the lack of freshwater is dangerous to human health, the current water source spreads illnesses. "Each year, waterborne diseases afflict hundreds of millions of people, primarily those living without safe, accessible water in developing countries." (*7 Most Common Waterborne Diseases (and How to Prevent Them). Lifewater International 2020*) More specific examples of the water-borne pathogens found in the non-freshwater that they use as a substitute are Typhoid Fever, Cholera, Giardia, Dysentery, E. coli full name Escherichia Coli, Hepatitis A, and Salmonella. (*Lifewater International, 2020*) All of these diseases are found in the unfiltered saltwater or rainwater that is used as a substitute for freshwater when the island is currently out of freshwater shipments.

The water crisis is no new thing. For years our top scientists have pondered possible solutions that could provide freshwater to the places that need it most. These solutions can be as simple as

Recycling wastewater, or as massive as finding a way to reforming the irrigation and improving the agricultural practices around the entire globe. Megaprojects like The south-to-north Water diversion project under construction in China during 2013 is an example of a failed solution to answer the world's water problems. It's easy to see that this has been a continuing problem for many years now, however little progress has been made in addressing the issue because cooperations aren't very willing to put money or effort into fixing this issue.

As mentioned before, the current solution for the freshwater shortage in The Cayman Islands is by using osmosis desalination plants and rainwater catchment. This, however, is not an efficient enough solution to provide consistent fresh water to those who live on The Cayman Islands, let alone the others in the western Caribbean who desperately need water.

One proposed solution is to transfer water conservation technologies to these areas that need freshwater (Walton, B., Blue, C., Bruess, E., & Circle of Blue, 2018). Making access to water filters more widespread would make it easier for people to get fresh water cheaply. "By relying on technology, the impact of the drought in the Caribbean can be lessened, and its people can continue to live healthy lives" (*Keith White, 2016*). This solution is one of the most considered solutions, as it seems to be the most realistic. However, there are some issues with implementing this idea. This technology will cost an extreme amount to make as some of the materials required to produce this piece of technology would need a large amount of labor to supply the materials. Meaning that the labor costs for this project would likely be very high, another problem would be the cost of shipping these filters to the places that need these filters the most. Another problem is that the amount of fuel and energy it will take in order to produce all these machines could end up making climate change problems worse, due to the emissions that mass production factories produce. This, in turn, will only cause the issues that lead to water scarcity to increase.

Some diplomatic solutions could work hypothetically. One such option is lowering the price of drinking water worldwide. If fresh water costs less money, it'll be cheaper to transport, meaning it'll be easier to get quantities of fresh water to communities around the world that don't have access to fresh water, such as the islands in the Caribbean, like The Cayman Islands. However, doing so is tricky because economies are weak and there are gaps in skills that often compel government and business authorities to impose these changes on local citizens (*Walton, B., Blue, C., Bruess, E., & Circle of Blue, 2018*). Another major issue with this idea is that it would be impossible to get every nation to agree on a water price. Different places and cultures might see water as more valuable than others. "There is no reliable "market price" in a volatile world driven by greed and profits, with no social regulation. The idea that the management and distribution of and access to a scarce and vital resource like water can be left to the market—and that the market can assign a reliable price reflecting the real value of water—is both absurd and irresponsible" (VANDANA SHIVA, 2008).

The solution that is most likely to solve the problem is building international frameworks and gaining institutional cooperation. We need governments all over the globe to work together to solve this issue, to create international solutions to help make sure everyone has fresh water. While the most likely solution to fix the problems would be building an international framework

and gaining international cooperation, it is improbable all powers would agree to such a thing. "Build international frameworks and institutional cooperation Binding international accords for natural resource issues are hard to achieve. The 2009 United Nations Climate Change Conference in Copenhagen is evidence of that point. And that's not just because the freshwater crisis, arguably the most visible and dire of the climate change risks, was ignored. Regional agreements regarding transboundary or shared water bodies such as the Great Lakes Compact in the U.S. and Nile River basin agreement in Africa are just as difficult to ratify" (Walton, B., Blue, C., Bruess, E., & Circle of Blue Circle of Blue, 2018).

However this idea is still worth being mentioned. As there are prior instances of governments coming together over similar environmental issues that make this idea slightly popular. An example of multiple governments coming together to try and solve environmental agreements is the Paris climate accords. "the Paris Climate Agreement was created, in hopes that all nations, big or small, could work together to help fight climate change. " (SIM Social Impact Movement, 2021). There have definitely been some who doubt the legitimacy of the Paris climate agreement. However it is still technically multiple countries coming together to try and find solutions to climate change, therefore is an example of governments coming together over similar environmental issues.

Due to that logic, I feel the only real solution I can propose is, starting water projects that prioritize transferring technology. That way we will increase access to fresh water to all the places in the Caribbean that are suffering due to the scarcity of fresh water. This project would likely be led by nonprofit organizations such as Why Water, The Last Well, or One Love. Charities have already become dedicated to finding solutions to the water crisis worldwide. I can also see some organizations that are well known, like the World Health Organization, possibly becoming involved as well. If you want to help this cause, this project could be funded by donations, and charity events, also possibly from businesses that would like to contribute. This plan can only happen if people show serious support. So it'll be important that a lot of communities, organizations and even government officials contribute time, money, or simply spread the word.

It is extremely important to recognize the importance of what is currently happening in the world, the Covid 19 virus has drastically changed the businesses between different countries is be done, it has also created a time of civil unrest and has caused many humanitarian problems such as climate change or water scarcity to become an after thought to many. It's important that we recognize that this pandemic has only caused the issues that have been discussed to worsen and we are reaching a point where areas and entire countries are beginning to no longer be able it's people.

The covid 19 Pandemic has been devastating to the lifestyle of those who live on the Cayman Islands. The quality of life that was once prominent on the Island has vanished. Due to talking to my grandparents that live on the islands.

I have learned that because of the pandemic, things have gotten extremely hard on the main Island. The pandemic has lead to a massive decrease in tourism as expected, but as a place that is meant to be a tourist and vacation spot that means the local economy has been hit pretty hard.

Also, the Cayman Islands are no longer getting its regular shipments of fresh fruit, vegetables, and meat that isn't seafood due to the pandemic.

Of course, this means the population of the islands is going a long time without the fresh water and protein they need to stay healthy. My grandparents are even struggling to get the medication they need. So it's gotten to the point where this once lovely island is beginning to have any major health concerns it's gotten so bad that my grandparents are considering leaving the islands to come back to the states. If nothing is done to close the gap created by covid, the Cayman Islands could see a decrease in its population.

Works Cited

Cayman islands' most-trusted news source. (2021, March 26). Retrieved March 27, 2021, from <http://www.caymancompass.com/>

The Cayman Islands. (n.d.). Retrieved March 27, 2021, from <https://www.everyculture.com/Bo-Co/Cayman-Islands.html>

Cayman islands country profile. (n.d.). Retrieved March 29, 2021, from http://www.caribbeanelections.com/ky/education/country_profile.asp

Cayman Islands Geography 2020, CIA World Factbook. (n.d.). Retrieved March 29, 2021, from https://theodora.com/wfbcurrent/cayman_islands/cayman_islands_geography.html

Cayman Islands: 2020/21 average salary survey. (n.d.). Retrieved March 27, 2021, from [https://www.averagesalarysurvey.com/cayman-islands#:~:text=CAYMAN%20ISLANDS%20SALARY&text=Average%20salary%20in%20Cayman%20Islands,salary%20is%2069%2C466%20\(Gross\).](https://www.averagesalarysurvey.com/cayman-islands#:~:text=CAYMAN%20ISLANDS%20SALARY&text=Average%20salary%20in%20Cayman%20Islands,salary%20is%2069%2C466%20(Gross).)

Central intelligence agency. (n.d.). Retrieved March 27, 2021, from <https://www.cia.gov/the-world-factbook/countries/>

Central intelligence agency. (n.d.). Retrieved March 27, 2021, from <https://www.cia.gov/the-world-factbook/countries/cayman-islands/>

Ewing-Chow, D. (2019, February 18). In search of a solution for water scarcity in the Caribbean. Retrieved March 27, 2021, from <https://www.forbes.com/sites/daphneewingchow/2019/02/12/in-search-of-a-solution-for-water-scarcity-in-the-caribbean/?sh=71bf852f1511>

Government, C. I. (2021). Gov. ky. Retrieved March 29, 2021, from

<https://www.gov.ky/about-us/our-islands/environment>

Global water intelligence. (n.d.). Retrieved March 27, 2021, from <http://www.globalwaterintel.com/>

How Cayman Islands' CUISINE plays a vital role in Caribbean Culture? (2017, January 28). Retrieved from <https://www.grandoldhouse.com/how-cayman-islands-cuisine-plays-a-vital-role-in-caribbean-culture>

Is mineral water more healthful? Benefits and side effects. (n.d.). Retrieved from <https://www.medicalnewstoday.com/articles/324910#mineral-water-vs-regular-water>

“7 Most Common Waterborne Diseases (and How to Prevent Them).” *Lifewater International*, 29 Sept. 2020, lifewater.org/blog/7-most-common-waterborne-diseases-and-how-to-prevent-them/?gclid=CjwKCAjwmeiIBhA6EiwA-uaeFSVd2gTWGCynoMYYYIm-

Murphy, Chris B. “Cayman Islands DOLLAR (KYD).” *Investopedia*, Investopedia, 25 July 2021, www.investopedia.com/terms/k/kyd.asp. *Nhs Choices*, NHS, www.nhs.uk/conditions/dehydration/.

“We Know How to Solve Water Scarcity, but We Are Failing to Fund the Solutions.” *The Guardian*, Guardian News and Media, 18 July 2013, www.theguardian.com/sustainable-business/solve-water-scarcity-failing-fund-solutions.

Nekesha B. Williams, & Ken D. Thomas. (2012). Sustainable Water Resources in the Caribbean: Prospects and Challenges. *Water Resources IMPACT*, 14(5), 19-21. Retrieved March 27, 2021, from <http://www.jstor.org/stable/wateresoimpa.14.5.0019>

SHIVA, V. (2008.). The opposition's opening statement. Retrieved March 29, 2021, from <https://www.economist.com/news/2008/09/24/the-oppositions-opening-statement>

Staff, C. (2016, July 01). The Caribbean water problem. Retrieved March 27, 2021, from <https://www.caribjournal.com/2016/06/30/caribbean-water-problem/>

Water crisis - learn about the global water crisis. (n.d.). Retrieved March 27, 2021, from <https://water.org/our-impact/water-crisis/>

Walton, B., Blue, C., Bruess, E., & Circle of Blue. Circle of Blue provides relevant. (2018, October 05). Experts name the top 19 solutions to the global freshwater crisis. Retrieved March 27, 2021, from <https://www.circleofblue.org/2010/world/experts-name-the-top-19-solutions-to-the-global-freshwater-crisis/>

“We Know How to Solve Water Scarcity, but We Are Failing to Fund the Solutions.” *The*

Guardian, Guardian News and Media, 18 July 2013,
www.theguardian.com/sustainable-business/solve-water-scarcity-failing-fund-solutions.

What is the Paris Climate agreement. (2021, August 03). Retrieved from
https://socialimpactmovement.org/what-is-the-paris-climate-agreement/?gclid=CjwKCAjwmeilBhA6EiwA-uaeFcTIRwCSf97zxBh_9VuYTYLV4JqE5KRyuON8dT8nOxY3EZ9nqO-pJhoCkLMQAvD_BwE

White, K. (2016, July 01). The Caribbean water problem. Retrieved March 29, 2021, from
<https://www.caribjournal.com/2016/06/30/caribbean-water-problem/>

The worsening water crisis in the eastern Caribbean. (2021, January 05). Retrieved March 29, 2021, from <https://eos.org/articles/worsening-water-crisis-in-the-eastern-caribbean>

Writer, S. (2016, December 06). Cayman Islands. Retrieved March 29, 2021, from
<https://jamaicans.com/caymanislands/>

(n.d.). Retrieved from <https://www.nhs.uk/conditions/dehydration/>