

THE FIGHT FOR WATER IN PANAMA

ALEC CONDRY

Dear Northeastern Student,

There's truly nothing better than a warm shower after a long day of work. When you have the time to just relax by yourself and let the hot water rush over you, it can be utterly euphoric. When you're in this state of relaxation the last thing on your mind is the 2.1 gallons of water used every minute to keep the shower running. The straightforward and nearly unlimited access to plumbing and drinking water is enjoyed by over 99% of American households. However, this is not a reality shared by the entire world. In fact, one in three people worldwide do not have access to safe drinking water and almost half of the world does not have access to basic sanitation facilities like hand washing. How can something so essential for human life be so unequally distributed?

The largest factor determining whether a person has access to drinking water is income. According to a joint report by WHO and UNICEF, 98% of high-income individuals have access to safe drinking water compared to only 29% of low-income people. The situation is saddening but not hopeless. Numerous charity groups and humanitarian organizations have been working for decades to close the gap and provide everyone, regardless of socioeconomic status, access to drinking water. In 1990, unsafe drinking sources were the 8th leading cause of death on Earth. Since then, deaths due to unsafe water sources have dropped by 50% from 2.44 million per year to 1.22 million per year. One success story is the country of Panama.

Over the past few decades, Panama's access to clean drinking water for the urban population has exploded from under 50% to

over 90% of the population having 24-hour access to clean drinking water. However, there is still a huge wealth disparity between urban and rural areas and consequently, a gap in access to water. Of the 1.2 million people living in rural communities, only around 50% have access to sanitation and 83% have access to improved water sources. This means that roughly 200,000 people still do not have access to a 24-hour water supply. In addition, due to the geography, the weather, and the socioeconomic factors of rural Panama, it can be very costly to implement these systems.

Panama is in South America located between Costa Rica and Columbia. The geography contains a mixture of rainforests, mountains, archipelagos, and coastal lowlands. This makes it difficult to traverse without local help. Additionally, the tropical nature of the weather lends itself to hurricanes, floods, and increasingly common droughts. Due to the effects of climate change, extreme weather conditions are much more common, and the consequences will only worsen over the coming decades. This means that not only is it difficult to acquire the supplies for a water system, but the system must be resilient to a host of natural disasters in the present and on into the future.

While the Panama Canal has made the country a necessity for international shipping, much of the profits are not seen by the average Panamanian. Most of the rural population of Panama are agrarian communities that rely on subsistence farming to survive. These communities do not have access to the money nor the knowledge to implement the complicated water distribution needed for such a harsh environment. Fortunately, humanitarian organizations and government institutions like the Inter-American Development bank are investing large amounts of resources to provide further access to these rural communities. However, the fight is not over until all Panamanians have access to clean drinking water and sanitation services.

The fight for equitable access to clean drinking water is a long hard war that will take millions of people and many years, and you can help. As a Northeastern student, you may not have access to endless coffers (or with the tuition we're paying, any at all), but if you're attending this school, it means you have an unyielding drive and impressive knowledge. At Engineers Without Borders, an American non-profit for international aid, you can put your skills to use helping communities around the world get access to the basic facilities they have a right to. Whether you're an engineer, graphic designer, writer, accountant, or more there is work to be done to improve the lives of your fellow humans.

Just last year, through a multi-faceted interdisciplinary effort, Engineers Without Borders at Northeastern completed a project in the rural town of Las Delicias in the forests of Panama. Through the club's hard work, a new water system was installed to replace the community's old system that could not provide sufficient water and was susceptible to environmental factors. The club members talked with the village to evaluate their needs, wrote grants to get funding, surveyed the land to determine the implementation, designed the water system, and contacted Panamanian companies to set up construction. Then, when the designs were finalized, a group of students and a mentor flew to Panama to personally oversee the implementation. The project was a complete success. The town was so happy with its new water system that they encouraged neighboring towns to contact Northeastern's Engineers Without Borders chapter and get help themselves. And thus, with one battle down, the club turned to face the next.

At the beginning of 2022, the town of La Pedregosa, about an hour's drive from Las Delicias, contacted Northeastern and asked if they could be provided with a new water system that could keep up with their water needs. Hence, the process started anew. While

the base problem was the same, the requirements and location presented a new host of challenges that will need to be solved. These problems require the time of good people like you who volunteer their own time to create a more equal and prosperous world.

Works Cited

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