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South Sudan: Water and Sanitation

Growing a Solution to Unsanitary Water in South Sudan

Barack Obama once said, “Without regard to whether someplace is wealthy or poor, everybody should have the chance at clean air and clean water.” However, individuals living in third-world countries such as South Sudan find it rather difficult to obtain clean water. In fact, women and children of South Sudan spend hours of their day collecting water, a necessity of life. Nonetheless, just across the ocean here in the United States of America, getting sanitary drinking water is no problem at all. It’s just a brief walk to the kitchen refrigerator, water fountain, or the nearest faucet, a privilege many individuals take for granted as they go about their daily lives.

(obamawhitehouse.archives.gov)

Located in east-central Africa, South Sudan is a landlocked country. The diverse landscape features found in South Sudan drastically separate it from surrounding countries. The Nile River, for example, serves as a vital transportation source. It flows through the heart of the country and has proven to be an asset to not only the humans, but animals as well. However, due to pollution from agricultural run-off, industrial workplaces, and untreated sewage, the water in the Nile River is unfit for human consumption. Even though the Nile River is not an ideal water source, many individuals find it better than no water at all. Due to the pollution, waterborne diseases are prevalent and a part of the daily struggle. (thearabweekly.com)

In 1983, the Second Sudanese Civil War broke out in South Sudan after raging conflicts between the Sudanese Government and the Southern Sudanese Liberation Army. A multitude of events led up to this historical war, including religious, ethnic, political, and economic factors.

As one of the longest conflicts in African history, the Second Sudanese Civil War truly made a profound and everlasting impact on society. In 2011, twenty-two years after the initial outbreak of the war, peace arose when South Sudan seceded from Sudan and became the world's youngest country. However, to this day, conflict in South Sudan is continuously arising due to internal government issues, including issues such as instability and hardships with the country's fragile peace. These issues have continued to rise since the formation of South Sudan in 2011.

beyondintractability.org)

Although ranked as one of the poorest countries worldwide, South Sudan has a staggering population of 11.48 million people. The lack of healthcare has drastically impacted the country's population negatively. Throughout the past couple of years, the population has not received the appropriate medical attention. In rural areas specifically, medical care is practically non-existent. This is due to a shortage of healthcare workers and being supplied with limited resources. In 2022, the mortality rate for women was at 311.5 per 1,000 female adults, while the mortality rate for men was at 373.92 per 1,000 male adults living in South Sudan. ([Statista.com](https://www.statista.com);

Worldhealthorganization.int)

Not only do the South Sudanese struggle with the precarious political climate and a mounting healthcare crisis, only about one-half of school-age children have access to education. Consequently, access for girls to a quality education is even harder than it is for boys. This is due to cultural factors, such as girls being expected to marry at a young age. According to UNICEF, “...every second girl in South Sudan is married before she reaches 18 years of age.” At a very young age, boys run the risk of being pulled out of school and recruited by numerous armed groups. To make a poor situation even worse, the educational system in South Sudan has a

limited number of qualified teachers, a lack of teaching materials, and an insufficient infrastructure to properly educate students. ([UNICEF.com](https://www.unicef.com); [Britanica.com](https://www.britanica.com))

An average South Sudanese household consists of 6 individuals, often including extended family members, with households sometimes consisting of three generations. Due to conflict and climate change, South Sudan is named as the world's largest and fastest displacement crisis. The crisis has resulted in necessities such as food and water becoming harder and harder for South Sudanese individuals to receive. To complicate the situation, services such as healthcare, education, and other essential services are becoming far and few in between due to the displacement crisis. In 2021, over half a million people were internally displaced due to flooding alone. ([Sudanembassy.com](https://www.sudanembassy.com); [UNHCR.org](https://www.unhcr.org))

Sudden geographical and climate changes intensify numerous problems in South Sudan. For example, the major flooding over the past few years has led to the outbreak of cholera. Cholera is a waterborne disease caused by contaminated water that can lead to death if not treated correctly and promptly. Climate change exacerbates the problem, with consistent flooding and droughts throughout the year. Cholera spreads differently than most diseases acquired by humans. It primarily contaminates individuals through contaminated food and water, making South Sudan's population very susceptible to cholera. Drinking sanitary water is the best way to prevent waterborne diseases. However, 59% of individuals living in South Sudan do not have access to safe water. Most water found in South Sudan is polluted with cholera and other waterborne diseases. According to the World Health Organization, “As of February 10, 2025, South Sudan has reported 24,921 cholera cases and 479 deaths since the onset of the outbreak in October 2024”. This is a major problem for every South Sudanese person. ([UNICEF.com](https://www.unicef.com); [Worldhealthorganization.int](https://www.worldhealthorganization.int))

Dirty water or no water at all - it is a choice millions of people living in South Sudan have to make every day. To address the issue of unsafe drinking water in South Sudan, a solution must be found. “Fifty-nine% of the population in South Sudan lacks access to safe drinking water, with just 10% of the population having access to improved sanitation. Furthermore, UNICEF is providing communities with access to safe water through the means of drilling boreholes. In areas where long-term solutions are still needed, UNICEF is trucking fresh water to communities or providing families with purification tablets and powder”. ([UNICEF.com](https://www.unicef.com); mafs.gov)

As a solution to South Sudan’s lack of suitable drinking water, I propose a multifaceted solution using sustainable bamboo. Bamboo’s exponentially large fibrous root systems are known for their filtration of water as well as possessing the ability to store the water once filtered. In fact, “One hectare of Guadua bamboo can store approximately 30,000 liters of water” according to Guadua Bamboo. Based on average daily water consumption, 30,000 liters, or nearly 8,000 gallons, of water could last approximately 100 days for a single person. As such, several hectares of bamboo can produce enough water for the masses. Fortunately, South Sudan is one of the very few places in the world that bamboo grows naturally. Known for its resilient and hardy nature, bamboo can thrive in harsh climate and soil conditions, therefore making South Sudan a perfect atmosphere for growth. Alongside being hardy, bamboo is also known for its rapid growth cycle. Without needing daily care, this particular plant can grow at an overwhelming rate. ([guinnessworldrecords.com](https://www.guinnessworldrecords.com); nutritionsource.hsph.harvard.edu; guaduabamboo.com)

When following the correct process, water can be quickly harvested directly from bamboo. The first step to harvesting the water is to find a healthy stalk, ideally around 3 to 4

inches in diameter. After the stalk of bamboo is found, use a knife or other sharp object and cut a small hole into the stalk. Once completed, a small tube will need to be inserted into the hole of the stalk then down towards the reservoir of water. When the tube is inserted, one will then be able to siphon the clean water out of the bamboo. Once all water has been collected, the tube needs to be removed. When this has occurred, the bamboo can then be left to continue growing and filter through more water. However, once the bamboo has completed its life cycle and cannot filter anymore water, the stalks can be harvested and burned to make charcoal. This charcoal can then be used to further filter the water harvested from the stalks. As a byproduct of the bamboo plant, the charcoal is known worldwide for its natural ability to remove impurities from water, therefore making it a viable option for the South Sudanese population. ([youtube.com](https://www.youtube.com))

In conclusion, South Sudan, the youngest and one of the poorest countries worldwide, has faced numerous circumstances leading them to where they are today. Together, the lack of healthcare systems, educational programs, and climate change has added to the problems. And we must not forget that the pollution from agricultural run-off, industrial workplaces, and untreated sewage have left water in the Nile River unfit for human consumption, thereby contributing even more to South Sudan's unsanitary conditions. While strides are being made to some extent, it is not enough to provide a long-term solution. It is my proposal that the use of bamboo to both filter and store water can provide a viable solution to one of the biggest problems faced by the South Sudanese people. ([gfmag.com](https://www.gfmag.com))

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