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An Upstream Approach to Diarrheal Disease

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Project Title: An Upstream Approach to Diarrheal Disease

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Abstract:

Diarrheal disease presents a significant health burden to many countries, predominantly within the African continent. A substantial driver influencing the rate of this disease is the lack of proper sanitation systems, which promotes open defecation practices, thereby contaminating vital water sources. Ingestion of these unsafe water sources directly results in diarrheal disease, through the transmission of certain pathogens – notably *E. coli*. While Oral Rehydration Therapy (ORT) has been deemed the gold standard to treat diarrheal diseases in developing countries, it does not present upstream solutions. Therefore, the goal of our intervention is to prevent open defecation in the first place, thereby mitigating water contamination, and avoiding the occurrence of diarrheal disease. Our intervention is based on the innovation of biofuel – specifically, harnessing human waste to generate energy. Particularly, two interventions will work together to enact meaningful, sustainable change in Uganda. The first model involves collecting waste from a latrine into an anaerobic digester, where it is converted into methane – a natural gas. The second model involves providing container toilets to participating households, where the waste will be collected bi-weekly and converted into a safe, renewable charcoal energy source. By incentivizing the use of our toilets, our intervention will effectively lower the occurrence of open defecation, protecting drinking water, and preventing diarrheal disease. Both models will include an educational component, which will use trusted members of the community to help relay our messages surrounding how this sanitation system can improve the health, environment, and economy of the community. This upstream, preventative approach to combating diarrheal disease presents several benefits to the community, the government, and the environment. This intervention will allow Uganda to make significant progress towards the Sustainable Development Goal (SDG) target 3.3, of ending waterborne diseases. Furthermore, combating diarrheal disease will also contribute to many other SDGs. Therefore, the potential impacts that this intervention will have on the health, environment, and economy in Uganda will enable the country to thrive prosperously and sustainably.