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Water Filtration System for Hospital in Bangladesh

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Research Brief: Water Filtration System for Hospital in Bangledesh

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In Bangladesh, Chandraghona Christian Hospital has been operating for over one hundred years and populates around three hundred people in a Christ-centered way. The hospital does have a bacterially clean hand pump well. However, there is no existing water filtration system, and the water being pumped out, especially during monsoon season, is very turbid, or cloudy with debris. In the summer of 2023, I continued to work on a project that started the year before. The main task was to help improve the system in terms of safety, maintainability, ease of manufacturing, and decreased yearly costs. I also verified and made additional calculations necessary to increase system accuracy. Through my work during the summer, the yearly cost decreased from $6,000 to $2,700.

Some procedures that were accomplished to lower the yearly costs were using Bernoulli's equation and changing the location of the filtration system. Also, some subsystems were redesigned to help improve maintainability and reliability for the people using the system. However, some work remains to be completed, such as finalizing the filtration system and the foundation and footing for which the system will reside.