

**Thesis Project Portfolio**

**Hydroponic Crop Cultivation as a Strategy for Reducing Food Insecurity**

(Technical Report)

**Hydroponic Gardens Battling Against Food Security in Panama**

(STS Research Paper)

An Undergraduate Thesis

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## **Sociotechnical Synthesis**

One of the most prominent challenges humans face nowadays is food insecurity. Many people struggle every day to put food on their table due to various reasons such as low-income, poverty, climate change, and lack of arable land among others. As humans, I feel it is our duty to seek ways to mitigate this problem as access to food is a basic human right. There are numerous methods that can be viable for alleviating food insecurity, with one of them being hydroponic farming. With hydroponic farming, crops can be grown faster and in a more sustainable fashion as it requires less water and does not need arable land.

For my technical project, my group proposed and built a floating hydroponic farm as a method for reducing food insecurity in Small Island Developing Countries. Caribbean countries face various food stressors including population growth, availability of fertile soil, and most of all, climate change. Climate change is a prominent problem for these small countries due to extreme weather events and rising sea levels. This motivated our project moving forward as the project prototype created is supposed to withstand these climate-related events in order to provide more food security for the population. Our project prototype was tested and successfully passed as a plausible mitigation method for food insecurity.

My STS research project investigates the viability of using hydroponic gardens to increase food security in poverty ridden areas of Panama. I proceeded by conducting research on these specific areas and talking to experts on the area in order to gain more insight on the subject. The possible setbacks of this implementation were thought of and discussed with local professionals, and plausible solutions were reached.

The work done this past year regarding these projects has felt extremely rewarding. Both projects were fruitful, even if everything on the schedule was not achieved. The results these projects yielded were not at all disappointing; instead, I would be happy to continue working on both in order to achieve even more. Working with a team was an enriching experience because we all got to learn from each other, while working alone forced me to continue pushing myself to do better. When working on these projects, it is extremely important to remember why it is so important. Reminding myself that by working on these I could possibly help someone someday was the best motivation for me.