

Vertical Hydroponics Garden: Increasing the Resiliency of Infrastructure in an Eco-School Environment to Combat the threats of Climate Change

Country: The Bahamas

School: Bishop Michael Eldon School

Participants: Four teachers and ten students.



The island of Grand Bahama was greatly impacted by Hurricane Dorian, which made landfall on September 3rd, 2019. The evidence of this impact could be seen throughout the island by the damages sustained to physical infrastructure and the loss of life. The primary areas impacted by Hurricane Dorian included the school's solar system, biodiversity garden and rainwater catchment system.



The project came about when the Ministry of Agriculture & Marine Resources of The Bahamas was in the process of launching their School Feeding Programme 2021. As students and teachers at Bishop Michael Eldon School were doing their research on the advantages and disadvantages of the hydroponics system, the program started. It was geared towards increasing local food production of healthy and nutritious foods to combat food insecurity in The Bahamas. One of the initiatives of the national program is the use of hydroponics to grow food on school campuses, and this is how the Vertical Hydroponics Garden at Bishop Michael Eldon School came about.

The project aimed to promote food security, a healthy lifestyle, modern farming techniques and sustainability. Although Bishop Michael Eldon Schools has their own vegetable garden which uses traditional farming methods, they needed a new infrastructure to increase both the quality and quantity of their produce. This also allowed them to be more self-sufficient, since they also share their harvest with the school's cafeteria. Finally, it aims to enhance the concept of biodiversity, environmental stewardship and sustainability in real life as well as in the classroom. Teachers instead of just talking about these concepts in theory can demonstrate to students how biodiversity is important and how we play a vital role in ensuring its balance and nurturing our resources as a nation.

The project engaged many people within the school, as well as the Bahamas Reef Environmental Educational Foundation (National Operator of Eco-Schools Bahamas); the Ministry of Agriculture and Marine Resources; Keep Grand Bahama Clean; the Anglican Central Education Board; the Global Environment Fund-Small Grants Programme; local businesses and private individuals; and of course the teachers and students involved.



The Bishop Michael Eldon School's hydroponics garden covers an area of approximately 24 square meters of land with 16 vertical hydroponic towers. The first eight vertical towers were purchased by the Ministry of Agriculture, while the addition of eight vertical towers was funded by the Eco-Schools Committee. The supplies for the additional eight vertical towers came from a local hydroponics garden farm store on the island, and students assisted during the towers' installation.

Since the project started, four teachers have taken their classes on a field trip to the hydroponics garden. The project has promoted hydroponics harvesting skills among the students, as well as a mind shift on farming and agriculture as a source of income and a subject which students can take up in college. Students involved with the project are excited to visit the garden and witness the plants grow. It is just wonderful to see the glow of students' eyes, and even the teachers can't believe the healthy and bountiful harvest that we got. 160 stalks of vegetables were planted and harvested including Swiss chard, kale, lettuce, and rhubarb. After the extension with eight additional vertical towers, students have doubled the number of seeds planted.



Parents and local community members are now excited to purchase the local school's harvest! The project has encouraged households to install hydroponic systems, which can generate income for them, allowing local businesses who sell hydroponics kits and supplies to thrive. To contribute to the dissemination of the project and keeping the local community involved, students have designed informative brochures which will be printed.

"I enjoy working with the hydroponics garden accompanied by a handful of my fellow classmates and Mrs. Selim-Dela Pena. Every school morning, each of us is assigned to a task in the hydroponics like sweeping the excess soil, weeding, and planting new seeds. Usually, I am assigned to pouring the fertilizer in the water barrels to help with the growth of the plants and additionally, checking the growth of plants is done frequently together. In addition, another task I'm usually assigned to is spraying pesticide on the plants which prevents insects from harming them. The time I spent in the hydroponics garden from the beginning of the school year to now I've enjoyed every moment and there's without a doubt that the other students that help feel the same way. My best-loved part about dealing with the hydroponics garden is witnessing the growth of the plants from when they're first placed into the soil to full grown plants. The hydroponics gardens have inspired many to start their own garden including myself and it creates a cordial environment when we are all working together."

- Brianna Bowe, Grade 11, Eco-School Committee - Member for Biodiversity Department

