An Organic Permaculture Demonstration Garden at the Future Centre Trust
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As a part of the Barbados Interdisciplinary Tropical Studies (BITS) program, and under the mentorship of Lorraine Ciarallo (Permaculture Research Institute of Australia) and Dr. Danielle Donnelly (McGill University), we undertook a 2 month-long project with the objective to set up a permaculture demonstration site in the garden of the Future Centre Trust (FCT), a non-governmental organization located in Little Edgehill, St. Thomas, Barbados.

Figure 1: Paula, Julia, and Lorraine with the FCT's part-time gardener, Clem.

Overall, the intention of this permaculture site was to demonstrate, on 450 m^2 of land, how an alternative and low-maintenance food production system can be implemented in a tropical environment like Barbados. Moreover, it intends not only to serve the FCT as an aid for teaching communities about the ethics and principals of permaculture but also to encourage Bajans to grow their own food using this sustainable farming system. In the long term we hope that this demonstration site influences the Bajan community in such a way that it can partially contribute to alleviating the food security crisis on the island, if adopted by a majority of families.

So in brief, what is so special about permaculture that it could help the Bajan community be more sustainable?

Permaculture is a holistic approach to a diversified and sustainable agriculture system that encompasses complete ecosystems into its design (Finckh & Wolfe, 1997). It recognizes universal patterns and principles of natural organic systems and applies them in practice; in other words it aims to design with nature rather than against it (King, 2008; Meacham, 2010). In particular, the main objective of permaculture is to produce as much food, raw materials, and energy as possible for local use with a minimum of external inputs (Finckh & Wolfe, 1997). Therefore outputs are used in such a way that they are inputs for other elements of the system (Meacham, 2010). Likewise, all resources in the ecosystem are considered and involved in the design; this includes incorporating water, soil, plants, and animals together as elements of the system (Moses *et al.*, n.d.). Hence we believe that if permacultural practices are implemented in Barbados at a greater scale, locals will have less need to buy imported foods, pesticides, and fertilizers. This in turn could help the island in becoming less dependent on imports from other countries.

Permaculture in Practice

During the 8 weeks that we developed the demonstration site, we accomplished several phases of the project and initiated some others, in order for them to be continued by the FCT.

Figure 2: Banana circle and composting pit (provides moisture and a fertile environment for the banana plants).

Figure 3: Construction of garden bed with volunteers.

We planted a banana circle with compost in the middle, and created a thermo-compost with plant litter, cardboard, and manure in another site of the garden. Moreover with the help of an expert botanist, we identified and researched all the tree species that were within the garden. Through our research we were able to identify the uses of each and the way in which they would benefit the overall system of the garden. With volunteer help on the weekends we were able to clean up the garden (by removing the undesired weeds and arranging the mulch around the plants) and created four garden beds. We then planted several new herbaceous and tree species that were available (either from the seed nurseries or donations from the community) and that were in demand in the Bajan market place. In particular, we planted avocado, jackfruit, and coconut trees, as well as hot and sweet pepper, eggplant, arugula, oregano, rosemary and thyme.

Figure 4: Newly planted coconut palms in the garden

After this, we set copper wire around the garden beds, as a way to repel Giant African snail and other pests such as slugs from eating all the seedlings. We then took measurements of the garden (including dimensions, and the locations of the trees, compost, banana circle, and garden beds) and developed a map of the site. Lastly we labelled all of the tree species in the garden stating their common and Latin name as well as general characteristics and uses.

Since all of the garden beds were successfully established in the garden, now the FCT has contacted an experienced company to set up an irrigation system beside the beds and the newly planted trees.

Figure 6: Mulching the garden with cardboard to shade out weeds.

Figure 7: Copper wire placed around the garden bed to repel the Giant African snail.

Figure 8: Paula creating a garden bed.

Recommendations for the FCT and future projects

For future projects relating to this garden site we recommend the establishment of a seed nursery that can be used for raising seeds and seedlings within the most optimal environmental conditions. This will ensure the plants are healthy and strong enough to be transplanted into the garden beds where they can then flourish. In addition, we recommend the FCT to plant an effective ground cover crop that will help to prevent erosion, protect the soil from the sun, conserve soil moisture, and compete with and shade out weeds. We also believe that the FCT would benefit from the purchase of a mulcher to break down organic matter in order to accelerate the decomposition and composting process. However, all of these activities will only be successful if the demonstration site has a permanent gardener or set of volunteers taking care of the garden on a daily basis or at regular intervals throughout the week.

We encourage the FCT to investigate how future projects could be developed to encourage and involve the community in cultivating their own gardens. Another interesting future project would be to design a plan on how the FCT could start marketing and selling the fruits and vegetables produced, in order for the FCT to make a profit from the garden.

Figure 9: Lorraine, Lani (FCT), Paula, and Julia creating a garden bed.

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